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CONSERVATIVE OPERATIVE TREATMENT OF LONG-STANDING INVERSION OF THE UTERUS*

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From the time of Hippocrates, who wrote clearly of this condition, to the modern era, inversion of the uterus was treated principally by elevation of the lower part of the body and pressure on the protruding mass — that is, by posture and taxis. At first, posture seems to have been most emphasized, while later taxis, in its various forms, was more largely depended on.

In the long-standing cases, however, this treatment was only occasionally successful. Most of the women who survived the primary shock and the hemorrhage of the first few months dragged out a miserable existence, and finally succumbed to anemia or chronic sepsis. The repeated and prolonged taxis, so persistently employed, often aggravated the symptoms and hastened the end.

As early as 50 B. C., Themison suggested amputation of the bleeding and sloughing corpus uteri, stating that he did not believe that the uterus was essential to life. One hundred and fifty years later the suggestion was put into practice by Soranus, who amputated a gangrenous uterus and the patient survived. From that time on, amputation of the bleeding corpus uteri was the usual treatment in those cases which resisted non-operative measures. In more recent years complete hysterectomy (by vagina) was substituted, in the comparatively clean cases, for the simple amputation of the corpus uteri. At present hysterectomy is, I think, the treatment most commonly employed in the long-standing cases. In some of these patients, particularly in those past the age of 35, amputation or hysterectomy is the best treatment. In other patients, however, especially in younger women, sacrifice of the uterus is not the best treatment. In such patients, preservation of a functionating uterus is very important and may be attained through a conservative operation. It is this phase of the subject that I wish to emphasize.

Conservative operative measures, that is, measures for the reduction and preservation of the uterus in the cases that resisted pressure replacement, have been developed only within the last half century. Aran, in 1858, and Marion Sims a few years later, suggested incision of the fibers of the constricting cervical ring, but it is not certain that either of them actually used the method. The first recorded use of this treatment is by Robert Barnes, in 1861. In a case of inversion of six months' duration, he made three incisions in the constricting cervical tissues. The incisions extended deeply enough into the tense cervical ring to relax it, when taxis was applied and the inversion easily reduced. In this method, as used by Barnes and others, the peritoneal cavity was, of course, not opened. On account of the danger of sepsis in those days, much care was exercised to avoid cutting through into the peritoneal cavity — hence the employment of multiple incisions to avoid too deep cutting at any one point.

The next radical step was the attempt to stretch the constricting ring by means of a dilator introduced through a median abdominal incision. In 1869, Thomas reported a case so treated. He experienced great difficulty in executing the work in the friable infiltrated tissues of the long-standing inversion, and in a second case the attempt proved fatal. The method was exceedingly dangerous and only fairly successful, as indicated by failure in nearly half of the cases. In employing this method in 1899, Everke aided reduction by superficial incisions into the constricting ring from the peritoneal surface.

In 1883, Browne employed an equally effective and much safer method of dilating the constricting ring. He made an incision through the posterior wall of the inverted fundus uteri, into the inverted peritoneal pouch. Through this opening, about 1½ inches long, a dilator was passed up into the constricting ring which was then dilated. After careful and full dilatation, the uterine incision was sutured and then the inverted fundus uteri was replaced by taxis.

Küstner (1893) made a long incision in the posterior uterine wall from near the fundus to near the external os. He first opened the posterior culdesac by a wide transverse incision, broke up any adhesions present and then incised the posterior uterine wall as just mentioned.

Following a suggestion by Piccoli in 1894, Morisani, in 1896, extended the incision up the posterior wall through the external os, thus giving complete division of the posterior uterine wall, which facilitated reduction, in the old cases with infiltrated, sclerotic walls.

Spinelli, a few years later, incised the anterior vaginal vault, opened the vesico-uterine peritoneal pouch, and then divided the anterior uterine wall from the external os to the top of the inverted fundus. This anterior division gives as much facility in reduction in difficult cases as the posterior division; and, being anterior, it possesses certain distinct advantages.

Haultain, in 1901, attacked by the abdominal route an inversion of nine months' duration; but instead of depending on dilatation of the ring, as did Thomas, Haultain incised the constricting ring posteriorly. The

* Read at the annual meeting of the Western Surgical Association, St. Louis, Dec. 20, 1913.

incision was gradually extended in the corpus uteri, as more and more of the inverted portion was pushed up within reach, until finally reposition was effected. The replaced uterus presented a posterior incision about 1½ inches in length, which was securely sutured from the peritoneal surface. The patient made a rapid recovery.

A few years later, Dobbin employed anterior incision of the constricting ring. It was a recent inversion com-

Fig. 1.—The inverted uterus, showing the changed relations.

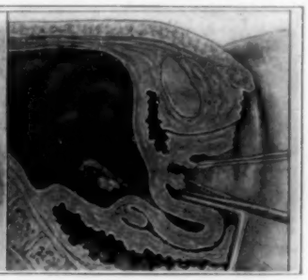

Fig. 2.—Beginning the operation for reposition (Spinelli method).

plicated by sepsis. Taxis failing, he opened the abdomen and endeavored to dilate the constricting ring after the method of Thomas. This failed completely. Then an incision was made in the anterior margin of the inversion funnel. This passed through the entire thickness of the uterine wall and was extended sufficiently to permit replacement of the corpus uteri. The patient died some days later of the progressive sepsis.

In brief the conservative operations for inversion of the uterus have been as follows:

OPERATIONS FOR REDUCTION OF AN INVERTED UTERUS

1. Multiple incisions into the constricting cervical ring (Aran, Sims, Barnes, 1861).

2. Dilatation of constriction ring by dilator introduced through an abdominal incision (Thomas, 1869; with incisions, Everke, 1899).

3. Dilatation of constriction ring by dilator introduced through incision in fundus uteri (Browne, 1883).

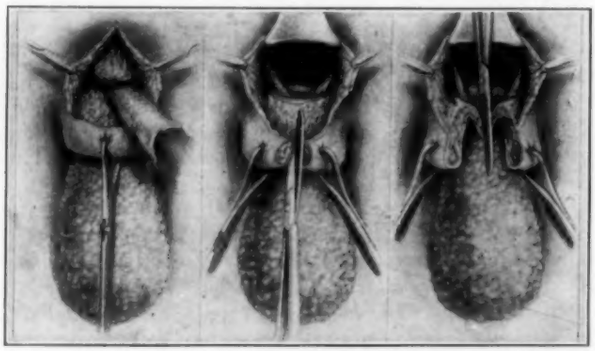

Fig. 3.—Separating the bladder from the cervix.

Fig. 4.—The peritoneum opened, exposing the inversion-funnel. Division of the cervix begun.

Fig. 5. — Cervix and constriction divided, and the incision being extended down the inverted corpus uteri.

4. Division of constriction ring and adjacent uterine wall and cervix, posteriorly (Küstner, 1893).

5. Complete division of posterior uterine wall and cervix (Piccoli, Morisani, 1896).

6. Complete division of anterior uterine wall and cervix (Spinelli, 1900).

7. Division of constriction ring posteriorly through an abdominal incision (Haultain, 1901).

8. Division of the constriction ring anteriorly through an abdominal incision (Dobbin, 1905).

Vaginal operation is by far the safer plan. Complete division of the anterior wall of the cervix and corpus uteri (Spinelli method) is altogether the most satisfactory method and the one I would strongly recommend in long-standing cases. The details of the method are conveniently shown by describing a case. The case reported is of interest also because of the seriousness of this affection and its extreme rarity.

REPORT OF OPERATION BY METHOD OF SPINELLI

Mrs. B., aged 23, operated on Feb. 7, 1913, for complete inversion of the uterus, of a year's duration, had been delivered of her first child Feb. 2, 1912. The labor was normal except for adherent placenta, which was removed manually. There was free bloody discharge and much cramping pain, which became less after six weeks. Bloody discharge continued off and on during the summer. The patient, though weak, nursed the baby and was up and about most of the time. In the fall the bleeding became worse and finally, in the winter, the patient consulted Dr. H. S. Brookes, who examined her and made a diagnosis of inversion of the uterus. When I saw the patient, in consultation with Dr. Brookes, she was weak

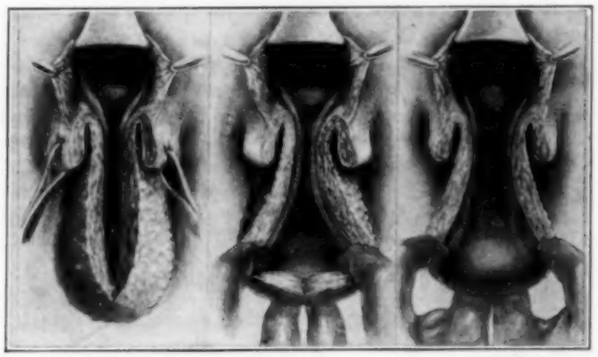

Fig. 6.—The incision extended to the fundus, as found necessary for reposition.

Fig. 7.—Turning the uterus inside in again. First step.

Fig. 8.—The turning almost completed. Peritoneal surface becoming external and mucous surface becoming internal.

from chronic loss of blood, and presented the exsanguinated, waxy appearance so characteristic of profound anemia.

After preparatory treatment, to improve the patient's condition as far as possible, the inversion was operated on by the Spinelli method, as follows:

1. After disinfection of the vagina and inverted corpus uteri, the anterior vaginal fornix was incised and the bladder separated from the uterus (Figs. 1, 2 and 3). The vesicouterine peritoneal pouch was then opened and the opening was widened laterally by the fingers, thus exposing the inversion funnel, as shown in Figure 4. Here there were numerous adhesions binding together the peritoneal surfaces, but the adhesions were easily separated.

2. The cervix was then divided anteriorly up to the constricting ring (Figs. 4 and 5), and the incision was continued down the anterior wall of the corpus uteri (Figs. 5 and 6). At various stages of the incision the attempt was made to turn the uterus inside in, but this could not be done until the incision was extended to the fundus.

3. The mucous surface of the uterus was then turned in by hooking the forefingers into the incision and rolling the peritoneal surface out while the two thumbs, making counterpressure, indented the mucous surface and pushed it in, as indicated in Figures 7 and 8. Considerable stretching of the shrunken and infiltrated peritoneum was necessary at this stage of the work.

4. The thickened uterine wall was then trimmed away sufficiently to permit approximation of the peritoneal portion of the uterine incision. The turned-out endometrium and adjacent muscular wall had become greatly infiltrated and thickened, and consequently a considerable portion of this wall, amounting to about one-fourth of the entire uterus, had to be cut away as indicated in Figure 9. This reduced the bulk of the uterus so that the shrunken peritoneum could be approximated around it.

5. The incision in the uterus was then closed by deep and superficial sutures (Figs. 10, 11, 12 and 13). The deep sutures included most of the thickness of the muscular wall, but missed the endometrium and the peritoneum. Over these deep sutures and burying them, was placed a superficial suture which approximated the peritoneum, care being taken to fold in the peritoneal edges.

6. Drainage was instituted. Free drainage is important in these cases because the chronically infiltrated and infected uterine wall cannot be wholly disinfected, and hence the incisions and manipulations spread contamination about the field. Marked absorption and fever for some days after operation is the rule in these cases, and in some cases the temperature is alarmingly high and persistent.

In this case tube-drainage was employed posteriorly, through a culdesac opening (Fig. 14), and a rubber-tissue drain anteriorly. In a similar case I would now use a tube-drain anteriorly as well as posteriorly (Fig. 14), to afford immediate exit to any contaminated fluid that otherwise might accumulate in the vesico-uterine peritoneal pouch.

7. The vaginal-section opening was closed, with drainage, and a vaginal packing put in to keep the cervix well back and the fundus forward. It is important to take steps to keep the uterus forward during the healing process. If the tendency toward backward displacement is marked in the replaced uterus, it should be fastened forward by one of the vaginal operative methods. If there is no special tendency backward, a packing or pessary for some days will be sufficient.

Following operation, the patient had considerable fever. The first day the temperature was 103 F., the second day 102.4, the third day 102.6.

This persistent fever was of course disquieting, on account of the possibility of a spreading peritonitis or of generalized venous infection (pyemia). These dangers had been taken into account when I decided to save the uterus, and I had then determined that if serious infection developed after operation I would do a vaginal hysterectomy, to remove the infected organ and establish free drainage. It looked for a time as though a serious infection might be developing, but it did not develop. The fever was the only disturbing symptom. There were no evidences of serious peritoneal irritation,

Fig. 9.—Turning completed. Dotted line indicates portion it was necessary to excise on each side, to permit approximation of peritoneal edges.

Fig. 10.—Closing the uterine incision. One of the deep sutures for the muscular portion.

Fig. 11.—Closing the uterine incision. The superficial suture for the peritoneal portion.

so I felt safe in waiting. The fever gradually subsided in the course of ten days, and the subsequent convalescence was uninterrupted.

The high temperature was probably an absorption-temperature, due largely, if not entirely, to the disturbance of the infiltrated uterine wall. There was not only an incision through the infiltrated wall but also a general shifting of the relation of the elements of the wall by the forcible turning of the uterus inside in again. That this general shifting of the elements of the wall is an important factor is indicated by the fact that marked rise of temperature has been noted in cases of reduction by taxis without incision.

The patient gained strength rapidly, iron of course being given to overcome the marked anemia due to the previous chronic blood-loss. Menstruation began in April, the second month after the operation, and has been regular since. The first two or three times the flow lasted only two or three

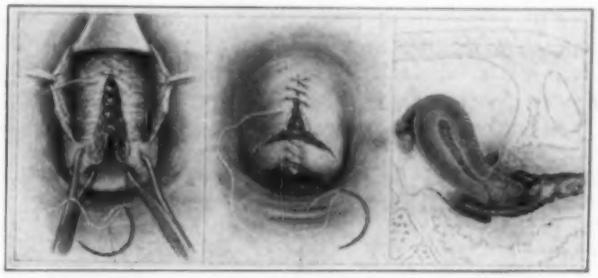

Fig. 12.—Closing the cervical incision.

Fig. 13.—Closing the vaginal incision.

Fig. 14. — Free drainage. Tube-drain in posterior peritoneal pouch and in the anterior pouch.

days and was scanty. Since then it has been normal—from three to four days and a good flow, but not excessive. The patient states that the menstruation is the same now as it was before she became pregnant, except that the pains she formerly had do not now appear. The general health is good and the patient feels well and strong and is as active as ever. On examination recently, the uterus and other pelvic organs appeared practically normal.

ADVANTAGES OF THE METHOD

The advantages of the method employed are the following:

1. Being vaginal, it minimizes the amount of peritoneal contamination, a most important consideration when dealing with an infected structure.

2. As the reposition is accomplished by incision, there is not the bruising and perforation of the friable uterine wall which has so often accompanied attempted reposition by dilatation of the constriction-ring.

3. Division of the anterior uterine wall is preferable to division of the posterior wall, because the work is thus more easily and accurately accomplished. The anterior uterine wall and anterior fornix lie toward the operator, and hence are less deeply situated and more easily reached. Again, when the operation is anterior, the bladder may be lifted away, giving a wide space for investigation of the inversion-funnel and of the various pelvic structures, and also more room for the operative manipulations of incision, reposition and suturing. Again, if there is a marked backward tendency, effective forward fastening of the uterus may be carried out through the anterior incision. Again, a suture-line on the posterior surface of the uterine wall extending to the fundus is more likely to form troublesome adhesions — to the intestines, leading to obstruction, or to the posterior pelvic wall, leading to adherent retrodisplacement.

The points in favor of the posterior incision are that it eliminates the extra opening for drainage and that the sacro-uterine ligaments may be more conveniently shortened; but these minor advantages of the posterior incision are outweighed by the more important advantages of the anterior incision.

Metropolitan Building.

SPINAL TRANSPLANT *

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This article was suggested by Dr. E. Wyllys Andrews, and is a plea for fair judgment, favorable or unfavorable, of the autobone transplant of Dr. Albee for tuberculous spondylitis.

The treatment of tuberculous vertebrae by the nonoperative method in the hands of most orthopedists terminates satisfactorily to the patient and to the surgeon in those cases which he can keep under control for a long period of time — say two or three years. There are cases, however, in which future health and bread-earning ability depend on:

Fig. 1.—Patient bending and touching the fingers to the floor. Notice the stiffness and absence of gradual even curve in this back. Compare with Figure 2, a normal back.

1. Such control as the operative method seems in some instances to give.

2. A shortened period of recumbency which in a number of my cases has apparently been due to the added support of the bone splint. It is only fair to give the facts regarding the results, good and bad, of the work in this field, to those who may help to judge of the merits and disadvantages of such treatment, and it is hoped that those who have operated in one or two cases with unfavorable results will not consider worthless this new, under-the-skin splint before they have the data of many cases, based on observations extending over some years.

Many adults frequent the hospital at ages ranging from 30 to 45 years whose history is much like the following cases and whose condition is due to what I call lack of control sufficient to establish and continue treatment to firm ankylosis, which means a working physical condition.

* Read before the Chicago Medical Society, Jan. 30, 1914.

CASE 1.—A woman aged 39, who appeared much older, gave a history of painful and deformed back since girlhood, and related many periods of illness which confined her to bed and prevented school attendance and work. She always insisted that she was well as soon as the recumbent position, cast or brace had eased the back pain, and it was impossible to continue treatment at any one time more than two months. Extreme emaciation and multiple sinuses are the results. We should ask ourselves if operative measures would have established control in this patient in her youth and prevented, at least in an indirect way, the invalidism she has carried for life.

A second case will further illustrate what I mean by control.

CASE 2.—A girl aged 14, who had been under treatment in recumbence, cast and brace, at various times for two years, each time left the hospital, discarding cast and brace in the face of every effort to the contrary, and returned each time only after she was unable to work longer. During one stay in the hospital she developed a condition diagnosed as tuberculous meningitis, but recovered, and I therefore doubt the diagnosis. At her last appearance at the hospital, she was prepared for operation the day she entered, the operator reasoning that her only hope to escape the fate of Patient 1 was in this procedure. Otherwise, the comfort of a Bradford frame would have influenced her to walk out of the hospital prematurely. Chest examination revealed pulmonary tuberculosis. The Roentgen ray showed caries of the bodies of the sixth and seventh dorsal vertebrae, and there was slight angular kyphosis and very painful, rigid back. She was operated on, kept in bed three months, and allowed to be up and about without support at the end of four months.

Fig. 2.—Normal back showing the gradual, even curve, unlike that in the grafted spondylitis, as in Figure 1.

Technic of Operation.—An iodin preparation was followed by an 8-inch elliptic incision including the fourth, fifth, sixth, seventh and eighth dorsal spinous processes, which were split and fractured at the base with knife and chisel, about one-third their thickness being turned down. The soft interspinous tissues were hollowed out, so as to form a groove 5¼ inches long, ¾ inch deep and ½ inch wide for implantation of a section of the tibia. Bleeding was controlled by means of hot sponges.

An elliptic incision was made over the left tibia about 5 inches in length, the anteromedial surface of the tibia bared, and the tibialis anterior muscle pushed outward ⅛ inch. Incisions were made through the periosteum lengthwise for 5¼ inches on each side of the anterior border of the tibia, the periosteum included, and a wedge-shaped section of the bone 5¼ inches long by ½ inch deep was excised. This transplant was then cut transversely in three or four places to allow it to be bent easily, and a hole was drilled in both ends.

Strong catgut on an aneurysm needle was introduced through one side of the split fourth spinous process, then

Fig. 3.—Case showing knuckle in high dorsal region, but on account of the prominent knuckle best adapted for Albee's method of operation.

through the drilled hole in one end of the transplant, and thence through the other section of the spinous process, thereby securely anchoring the upper end of the transplant between the split spinous processes. The other end of the transplant was secured in the same manner, and made to fit into the groove between the split spines. This groove was made slightly to the left of the median line. The transplant was then covered over by the paraspinous tissues, the suturing material being heavy chromic catgut. Tension sutures of silkworm gut were used to close the wound and the skin approximated with Michel clips. Dry dressings were applied with a circular pad of felt, preventing pressure on the incision. The leg incision was closed by means of fine catgut for the periosteum and black silk for the skin. As soon as the patient was removed from the operating-table, and before she recovered from the effects of the ether anesthesia, she was placed on a Bradford frame.

VARIATIONS IN TECHNIC

The elliptic incision over the tibia should not be used for the back operation. It has obvious advantages, but, over the tibia, it has no place. Here, the best technic, for comfort, shortness of incision, least disturbance of muscle and perfect healing, is to incise directly over the anterior border of the tibia, dissect the muscle back slightly on the outer border, protecting the periosteum, mark out the size of the bone by cutting down on it through the periosteum, according to the measure obtained from the back; then this bone should be either sawed or chiseled out, leaving the periosteum intact. It will be found that, in the young patients, one accustomed to chiseling the bone out finds this a quicker and more satisfactory way than sawing. The ends and that part of the graft — usually the middle — which is embraced by the split halves of the most prominent process in the knuckles, should be very deeply and firmly fixed to secure the best results; otherwise, the ends spring up so that in some of the cases the finger could work the skin of the back under the ends of the graft. This aids absorption to take place before bone formation begins. The best fixation I have succeeded in obtaining has been by kangaroo tendon passed through the holes bored in the ends and middle of the graft. Pegging with autobone or ivory pegs has not been so satisfactory. Silk may, in the end, cause increased ankylosis by the irritation following slight infection and expulsion, and the kangaroo has given the best results in this series of cases. Regarding the postoperative position, the Bradford frame has been used with satisfaction in all but two cases. Patients, however, are comfortable on the chest-abdomen, but do not get the same tendency toward hyperextension, reduction of the kyphosis and relief of the vertebral pressure. The addition in the back position of a well-fitted felt pad around the kyphosis adds the advantages of the chest-abdomen position.

CASE 2.—*Later Report of Condition.*—Following the operation, the patient's condition, probably because of the lung tuberculosis, was very uncomfortable; the pulse was fast and weak at first; later, better, and after two days the prospects were gratifying. From now on her condition could be compared favorably with that of most patients following a major operation. The absence of pain, considering the double operation and the length of incision, was noticeable. Each wound healed perfectly; the slight kyphosis is now absent, and motion is painless and increased above and below the graft, so that, standing with stiff knees, she puts the fingers of both hands on the floor (Fig. 1).

Fig. 4.—Case with prominent knuckle in lower dorsal and lumbar region, best suited for the Albee method of operation.

Again we must ask ourselves, is not this patient, at five months after operation carrying a bone splint which she cannot remove, and having increased fixation, a better risk than she would be with only the recumbency treatment for the same length of time?

SHORTENED PERIOD OF TREATMENT

Albee, to whom great credit is due in this work, disregards mechanical support after the operation, and gets his patients up early. This may be a safe procedure when a heavy bone splint has been deeply and securely placed between the split spinous processes, and the bodies of the vertebrae thus held apart without the aid of callus between and around them; but the trunk is so heavy, the splint so small in comparison with the weight it

must bear, and its leverage at such a disadvantage, that in this series of cases the splint has been looked on only as a temporary support, aiding the recumbent, brace-cast treatment, while heavy callus fills in about the vertebrae, supplying the finishing touch to ankylosis. Therefore, the patients whom I mention and whose cases I report have been given from three to ten months' support after the operation, on the supposition that if the treatment is continued for even as long as eighteen months, the time of the average non-operative treatment has been cut down about one-half.

Fig. 5.—Broken transplant (Case 6) tied with kangaroo. The kangaroo should go through holes made in each side of the split spinous process of the most prominent diseased vertebra.

SELECTION OF CASES

In this series of cases, no attempt was made to choose the good risks, operation being performed as each case was presented for treatment.

Factors which should be considered in selecting cases for operation are:

1. The general vitality of the patient.
2. The age.
3. The position of the disease in the vertebral column.
4. The amount of bone destruction.
5. The amount of callus formation.
6. The control of the patient.
7. The eagerness of patient and parent for shortened duration of treatment.

1. The more vigorous in constitution, the better the risk, but it has been surprising how nicely, with the exception of one, each patient, among those whose condition was considered hopeless, stood the operation and convalesced to an improvement in the general condition.

2. The age of the patient is considered an important factor by some who fear that the graft *per se* may not grow, and may thus tend to deform the backs of those young patients whose spinal columns will continue to grow and, therefore, bow backward when held by an unvielding, non-growing graft. Believers in this theory would select only the adult spine for operation. Experiments are in progress to determine the growth or non-growth in length, of the graft, and reports are in preparation for June, 1914.

3. The position of the disease in the vertebral column is a contra-indication to operation: (*a*) in those cases involving the high dorsal and low cervical region if the knuckle is so sharp and high that the occiput touches it and prevents the necessary space for work, and (*b*) in those cases in which the disease is in the middle and upper cervical regions.

Selection of that operation which will best lend itself to the particular region diseased.—I am inclined to select the lower dorsal, lumbar and sacral regions as the most favorable field for the Albee operation, and the middle and upper dorsal and lower cervical regions for the Hibbs operation, on account of the advantage given by the length, thickness and angle of projection of the spinous process in the different regions. Probably the most favorable position as offered by the spinous processes for the Albee operation, as far as ease of preparing the bed and firmly placing the transplant are concerned, is that of the lumbar and twelfth; sometimes, also, the eleventh dorsal vertebra. In the Hibbs operation, when the base of a spinous process is fractured across, the end denuded and turned down into the space caused by the fractured base of the neighbor below, best results are obtained when the sixth and seventh cervical, and all the dorsal spinous processes, with the exception of the eleventh and twelfth, are selected. This is because their length and relative position to their neighbors makes them yield easily to the desired technic. When the kyphos is sharp and large, separating the spinous processes, the condition becomes more favorable for the Albee operation, even though the kyphos is in the dorsal region (Figs. 3 and 4).

4. When the amount of bone destruction is great, such help in ankylosis as comes from the graft is indicated more than in those cases in which the small bone destruction can more easily be replaced from the bodies of the vertebrae.

5. The amount of callus formation and its ankylosing effect is the greatest element in the cure of these cases, and when it is large and strong enough to hold the back firmly, there is no need for placing a bone graft.

6. The control of the patient, as already indicated in this article, should be an indication for operative treatment in those cases in which the patients themselves or through their parents persist in discontinuing treatment early, much before the callus from the bodies of the vertebrae has had time to back up the support of the bone graft.

7. Other things being favorable, the desire of the patient or the parents to cut down the mechanical treatment a year or even a year and a half should be an indication for the operation and the aid it gives in accomplishing this wish.

Fig. 6.—This patient is resting on a frame in hyperextension. The scar on the leg can be plainly seen. Michel clips were used but remained in place too long.

Among those cases of this series of twenty-seven, which were so bad that the patients might have been denied operation were the following:

CASE 3.—A boy, aged 4, with an active tuberculous hip complicating a tuberculous spondylitis which included the fifth, sixth and seventh dorsal vertebrae, and a discharging sinus 2½ inches to the left and on a line with the tenth dorsal vertebra, progressed splendidly. Following this operation he had only slight after-pains, no complications, clean wounds not damaged by the nearby sinus, and marked improved general condition. His kyphosis decreased in promi-

nence because of the hyperextension on the frame, but no more than would have occurred without the operation. The patient was dismissed from the hospital early, and was allowed up with no support. Nine months after the operation, the kyphosis is increased; the sinus is closed.

CASE 4.—A boy, aged 16, poorly nourished, with marked spasticity of the legs, an ulcer about as large as the palm of the hand at the middle third of the right leg, eczema of the back, and incontinence of urine, was operated on in the manner described, except that the ends of the graft were anchored with silk instead of catgut. The wounds healed nicely in the presence of the eczema; the bladder condition improved, and the spasticity appeared at first not so marked. Later, pieces of silk came away, and five months after the operation he continues a bed case; spasticity is not improved; the general condition is improved.

CASE 5.—A man, aged 35, came to the hospital with lumbar Pott's disease, and while there, fell and injured his back. Later, he developed a spasticity of both legs, but was operated on in the usual way. The wounds healed by first intention; the pain in the back has continued; the kyphosis has decreased, but has been pushed to the right, producing a scoliosis. A prominence over the left ribs, resembling the bulging which accompanies the rotation of the vertebrae in scoliosis, has developed. Diagnosis of complicating sarcoma, following the fall, has been made in this case. The patient continues confined to bed, six months after the operation, and is worse.

Fig. 7.—A dry transplant holding five dry vertebrae together. The saw cuts allowed some bending of the transplant. This picture gives a good idea of what we try to do in the Albee method of operation.

CASE 6.—A boy, aged 14, with a very marked kyphosis and much lateral bending, unable to stand or sit unaided, was operated on in the usual manner, with this difference: the heavy splint was accidentally sawed through at its middle point, while weakening it with saw cuts so as to bend it to fit the knuckle. The graft was long enough to allow each end to be shaped for mortising, then a hole was drilled through the split sides of the spinous processes and through the mortised ends of the graft, and fixed by kangaroo tendon (Fig. 5). A small pressure sore developed over the most prominent part of the knuckle and graft, but healed in two weeks. Three weeks after the operation a nephritis developed which cleared up nicely on a milk and lime-water diet. The kyphosis is reduced, but hardly more than would be expected from the hyperextension maintained after the operation; there is more support in the back, and the patient can sit up better than he did before the operation. Considering the loss of bone in this case, the operative support should be given its share of credit for the improved condition.

CASE 7.—A girl, aged 9, with a positive neisserian infection, and a marked knuckle of the upper dorsal vertebrae, was operated on in June, 1912. She did badly from the beginning, was unable to stay on the frame, was uncomfortable all the time in any position, and finally, two months after operation, contracted sore throat, followed by pneumonia, and died at her home, after being removed from the hospital by her parents without hospital consent. An examination was refused.

CASE 8.—A man aged 32, with a marked kyphosis, treated for months in recumbency at a hospital, and discharged when spasticity of the legs developed, was received as a stretcher case and operated on in the usual way. When he was turned to examine the back on the third day after the operation, a bed-sore was discovered over the sacrum. This case was not improved, six weeks after the operation.

CASE 9.—The oldest patient operated on was a man aged 49 who had been unable to work for thirteen months. He experienced remarkably slight pain, and was more comfortable after the operation than before. This patient was kept on a frame for three months, wore a cast for seven weeks, and left the hospital and returned to work, with no support, six months after the operation.

CASE 10.—The youngest patient operated on was a boy aged 2, with involvement of the upper dorsal vertebrae, the graft including the sixth and seventh cervicals. This patient is doing well, and is up and about with a cast one month after the operation. The kyphosis has decreased, and the general condition and the prospects for a firm and early ankylosis are better, in my judgment, than if the operation had not been performed.

The favorable cases, with the exception of Case 2, have not been reported.

TENTATIVE CONCLUSIONS

Experience with this group of cases justifies the following tentative conclusions:

1. The operation is not severe. It is a double operation, and the length of incision is longer than in most operations, yet the recovery from the immediate effect is quick and the suffering is small.

2. Cases with discharging sinuses near the field of operation should not be refused operative treatment on account of the sinus, unless it lies within the field of incision.

3. Complicating pulmonary tuberculosis is not a contra-indication in all cases.

4. If the ends of the transplant are loose, they absorb. If they extend beyond the spinous process, that portion not attached will absorb back to the firm attachment.

5. Loose ends and broken ends, as in the middle of a bent graft, grow, when later, through fixation by position and quiet, they become attached.

6. The three cases complicated with Pott's paraplegia have not markedly improved. The longest time elapsing since the operation of a paraplegia case has been six months. During this time the position has been good, and such as to give hyperextension.

7. The young patients do better than the adults.

8. The operation has a distinct place in the treatment of selected cases of tuberculous spondylitis.

9. Albee's method of operation is preferable in the large majority of cases on account of the location of the disease and the size of the kyphosis.

10. Operative treatment should be followed by months of perfect quiet for the transplant.

Credit is due Drs. Stoland, Packard, Boren, Callentine and Dawson for aid in histories and operations, some of which were performed by them; and to Drs. Hartung, Hubney, Van Horn and Case for painstaking work with roentgenograms.

31 North State Street.

Before Asepsis.—Sir Hector Cameron gave the following brief description of the days when Lister first went to Glasgow: "Every wound discharged pus freely, and putrefactive changes occurred in the discharges of all"; and again: "Secondary hemorrhage, tetanus, erysipelas, septicemia, pyamea and hospital gangrene were never all absent from the hospital wards, and at times became alarmingly epidemic.—Wrench, G. T.: Lord Lister, His Life and Work.

METHODS OF EXAMINATION OF ILLITERATES FOR MENTAL DEFECTIVENESS

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The examination of an illiterate person for the purpose of determining his mental capacity is often difficult. To distinguish between ignorance and feeble-mindedness is by no means easy. Many of the elaborate and complicated tests for measuring the intellectual ability are clearly inapplicable and we cannot use them. All mental processes which obviously depend on education or special training for their development are at once ruled out, and by a careful analysis we find that many of the usual tests recommended require these educated and trained faculties on the part of the subject. We are here working on what, from a pedagogic point of view, is virgin soil, which, no matter how rich or how poor it may be, has never had the benefit of any cultivation.

There are two general methods of examining uneducated mental defectives: 1. Ascertaining the amount of acquired knowledge which their minds contain. 2. Attempting actually to test their various mental activities.

EXAMINATION FOR ACQUIRED KNOWLEDGE

In the first we go on the assumption that a normal person in a given environment will in spite of himself, so to speak, acquire and retain a certain amount of knowledge concerning the ordinary affairs of every-day life. Thus a farmer's boy ought to know the seasons for sowing and reaping of crops, the amount of yield from an acre, the quantity of milk a cow can give, how long it takes a chicken's egg to hatch, the process of making butter, etc., and whether or not he has been to school. On the contrary, it would be unreasonable to expect a city-raised seamstress to be familiar with any of these things, but she ought to know the price of cloth, the amount needed to make a dress, the names of colors and materials, and to be able to figure the amount of her weekly wages. There would, however, be other matters with which both would be conversant, such as the number of hours in a day, the months of the year, the days of the week, etc. There are many facts which may properly be considered as items of common knowledge in all civilized communities, even among the most ignorant of the population. Among these are the name of the ruler, the seat of the government and the date and significance of the great religious festivals like Christmas and Easter. It is also to be expected that all persons who are employed should be able to solve the simple problems in arithmetic which arise in making purchases and giving change, and that they should know the value of the different coins and bills used in the community.

By such questions we gage a man's mental capacity by what he has absorbed and retained, and it is a perfectly reliable and accurate method; but it is open to the great objection that in many instances we cannot even approximately estimate what his environment has been. This is especially true of foreigners. What we are likely to consider matters of universal knowledge may be absolutely unknown to them on account of the extreme limitations of their surroundings. Thus we are surprised to find that a half-grown Irish peasant-girl cannot tell the time by a watch until we learn that the only article of the kind she had ever come in contact with was the clock in the village school which she had attended for a few weeks only. It is almost impossible for us Americans, living as we do in the most highly developed country in the world, to realize the narrowness of the lives of some of the poorer classes of the countries of Europe, much less that of districts still less favored. Some of these people live a life of sordidness and hard-working monotony almost beyond belief, and it results in a mental equipment which is correspondingly limited and stunted. Some of them cannot even repeat the names of the days in the week, and know the passage of time only by the ringing of the village church-bell on Sunday morning, which for them is the signal not to go to work. We find that many of the Irish immigrants from the remote districts do not know what year it is; yet how can we expect them to know the date when they have never owned a calendar? The farmer of southern Italy, tilling a few acres of land and living in a hut, whose bare walls contain only one ornament, the unframed picture of the Madonna, whose only possessions are a bed, a table, a chair or two, a few kitchen utensils, and a little bedding, can hardly be expected to define the word "charity." He has never been 50 miles from his place of birth. He could not go into a room in any of our houses and give the name in his own language for even a small part of the things he would see there, because he has never seen or heard of them before. His possessions, his ideas, his vocabulary and his experiences are all extremely limited, and he must be judged and measured accordingly. He is badly off, it is true, but yet more fortunate than some of the Porto Ricans or Filipinos.

Thus in determining feeble-mindedness in foreign races by measuring the amount of their acquired knowledge, a great deal of time and energy must be expended in deciding what are normal standards for each race and also for the various social and geographical classes in each country; and at best such standards are only relative.

EXAMINATION OF MENTAL ACTIVITIES

Confronted by this dilemma, we instinctively turn to some other method of examination and take up the other line along which an investigation of this nature may be carried out; that is, to test the actual mental ability of the individual independently of the amount of knowledge he may have acquired. Here again we at once encounter difficulties. The tests devised for measuring the higher faculties of the mind in the examination-room are largely academic and rather unsatisfactory evidence as to the way the subject will use his judgment or reason in solving the problems of every-day life. He may do better or he may do worse, and the "acid test" of intellectual endowment is not how skilfully he can talk, remember, reason or think in the abstract, but how wisely he will act when the real emergency arises and when fear, desire, greed, appetite and a host of other emotions are clouding the judgment. There was once a famous professor of therapeutics who year after year taught his classes not to pass a stomach-pump in cases of suspected strychnin poisoning; and yet when the case was at last actually brought before him in the presence of the class, he deliberately ordered the stomach-tube passed, and the patient immediately died of cramp asphyxia. Every one knows how unsatisfactory school examinations are to test the real ability, and the same thing is true of mental examinations as regards the

higher faculties. Indeed, the division of the normal mind into its different parts has not as yet been perfectly accomplished by psychologists. Some of the mental faculties cannot be properly described or defined and many of the well-recognized divisions overlap and intermingle to a confusing degree and we cannot always decide exactly what powers are involved in performing certain acts.

With this understanding of the limitations which must of necessity apply to our results, some of the methods which may be employed will be discussed.

METHODS USED IN THE TESTS

The superficial memory and attention may be readily tested by repeating figures slowly and evenly to the subject and seeing how many he can remember after hearing them once. Normal adults can generally repeat seven disconnected digits without trouble.

The cube test is also very useful for this purpose. It consists in placing four or five ordinary wooden blocks of the same size and color in a row on the table before the subject. The examiner then touches the different blocks in a certain order and has the subject repeat the process. A large number of combinations may be made, testing the power of the attention and memory to a greater or less degree. Obviously, these are the only two elements involved in this test other than the semi-automatic train of mental processes which must of necessity accompany any purposeful act, but which are so elementary that they need not be considered as a part of the test; and the only information we get from the trial with the blocks is concerning the memory and attention. All writers on the subject are agreed that inability to control the attention is a marked symptom of most defectives; hence the cube test is an important one and, on account of its cheapness and simplicity, always available.

Judgment and reason are so interwoven that they are best examined together, and for this purpose a great number of tests have been devised.

In this connection it seems pertinent to make a few comments on tests in general. Every worker in this field has originated a number of devices of this order and all have earnestly sought for some one test by which it would be possible to separate quickly and accurately the defective from the normal. All investigators at one stage or another of their careers have hit on something which they thought was conclusive only to find that sooner or later cases appeared which upset their preconceived ideas on the subject. The human mind is too complex and intricate to be measured by such simple methods. Like an irregularly shaped solid, its total bulk cannot be limited by any one of its dimensions, and it is the sum total of the mental faculties which we must determine.

The purposeless multiplication and reduplication of tests and puzzles, without a definite and intelligent idea of the psychologic basis on which they are founded, cannot be productive of good results and only complicates our armamentarium and consumes time without giving any real additional information on which to form a judgment. The number of these tests is rapidly increasing, but the examiner will be wise if he uses only those for which an adequate explanation can be given and which plainly are not a repetition of the same thing in a slightly different form.

One or two puzzles which depend for their solution partly on the appreciation of different geometric forms and the comparison of the dimensions of empty spaces with solid bodies, as the Healy frame and the Fernald board, are distinctly useful, as the manner in which the subject attempts to solve them may throw considerable light on his general intelligence and also on his capacity to profit by previous errors.

Such puzzles (Healy) may be solved by using a very pure and high form of reasoning; but it is doubtful if ordinarily they are attacked entirely in this manner. It requires less mental effort actually to try the blocks in the frame in different positions in a haphazard fashion than to think out a plan of solution, and often the correct arrangement appears to be discovered by repeated trials rather than by reason. A very low grade of reasoning is required to complete the frame in this manner, the subject simply remembering the previous unsuccessful combinations so as to avoid repeating them. After it has once been worked out in this fashion, it is not difficult to repeat. In any event, too much stress should not be laid nor too much time spent in giving different puzzles of this sort, as some normal persons cannot do them in the allotted time and a few defectives seem to be able to handle them with ease. In conjunction with other data, they are quite valuable, however, and I think that they should be included in every examination as a routine measure.

To determine the ability of the subject to reason abstractly, to form correct judgments and to draw logical conclusions, a considerable number of methods may be used. All of these overlap, so they will be taken up together. It is intended merely to mention certain lines along which the examination may be conducted. Each investigator will modify them to suit his own individual ideas and the case before him, but the suggestions will show the principles involved.

The examiner may describe an imaginary situation, calling for a decision in which the subject is supposed to find himself, and then ask him what his probable action would be. Two examples will suffice:

The subject is told that he is shipwrecked and alone in a small boat many hundred miles from the shore. He has with him in the boat two boxes, one containing 50 pounds of bread, the other 50 pounds of gold. The sea is very rough and it is necessary to throw one of the boxes overboard to keep the boat from sinking. He is then asked to tell us which box he would discard.

He is told that his house is on fire and burning fiercely. There is time to make but one trip to the second story. When he gets upstairs he finds but two articles worth saving. One is a mattress, the other a large lamp. He must throw one out of the window and carry the other down. Which one will he carry down?

Certain premises may be stated and a false conclusion drawn and the subject asked if he concurs. For example, he is told that a young woman's body was found in a room cut into eight pieces. The police say that she committed suicide. Does he think that this is likely?

His ability to follow a simple syllogism in logic may be tested as follows:

I am taller than my sister. My sister is taller than my brother. Who is the taller, my brother or I?

In all hypothetic questions, it must be remembered that the imagination of the patient is in all likelihood extremely limited, and he may make the wrong reply because he is unable to picture the actual situation; but if the thing actually happened to him he would in reality take the proper course. This lack of the constructive

imagination is very significant of feeble-mindedness, but its existence is rather difficult to prove. A test along this line may be attempted by carefully drawing an imaginary picture in which something not actually mentioned is perfectly obvious to any one who really can form the mental picture at all and then by indirect means ascertaining if he realizes the condition which has been purposely left out of the verbal description.

For example, he is told that he and a companion are shipwrecked in a small boat and floating on the sea. When they left the vessel which was destroyed they took with them two buckets of fresh water. Several days have elapsed since the accident and they have consumed all of the water in one bucket and it is empty. The other bucket is still full of the fresh water, their only supply. He suddenly discovers that his companion's coat is on fire. Will he pour the bucket of fresh water over him, or what will he do?

Obviously, if he can picture the situation at all, he will state that he will reach over the side and fill the empty bucket with salt water and use that, or he will take the coat off and souse it in the sea.

Another good question is to ask if in scrubbing a flight of stairs, he would begin at the top or at the bottom.

In all questions like the above in which two alternatives are offered, the reason of the choice must be given, because by simply guessing, the right answer should be given at least half of the time. It is also important to avoid all details which might add an element of confusion. Thus if we say: "I am taller than my brother and my brother is taller than my father. Who is the taller, my father or I?" we are very apt to get the reply, "Your father"; and if we ask why, the subject will say, "Because he is the head of the house," jumping to that conclusion without paying any attention to the conditions laid down.

The power to count and figure to a limited degree is extremely important and should be thoroughly investigated in every case.

We ask the alien to count from one to twenty and then backward from twenty to one or ten to one.

One can count backward by four different mental processes:

1. By successively subtracting one from the preceding number.

2. By reverse association of the numbers in their regular order.

3. By drawing a mental picture of the numbers in their regular order as they would appear on a printed page and then reading them from right to left.

4. By learning them backward and repeating them by rote.

Counting backward by any of the first three methods is a somewhat complicated mental act and shows considerable degree of mental development. If the subject fails at first but can be taught readily, it is very much in his favor, as the capacity to learn is the most important point in the diagnosis of ignorance from feeble-mindedness.

Counting backward by rote can easily be detected by extending the process, as the subject fails when taken beyond the point he has learned.

Simple sums in addition and subtraction should also be given, and if they cannot be solved in the abstract they should be given concretely as, How many legs have two horses? Two horses and one man? etc.

The copying of simple geometric figures as the square, triangle and diamond are excellent tests for illiterates.

The attention, comprehension, memory, judgment, reason and muscular coordination are probably all involved in this simple and convenient test, and it explores the mind from a rather different angle than any of the others and is an important factor, therefore, in the sum total of evidence which we must review in doubtful cases.

It would be impossible to discuss this subject without some reference to the Binet-Simon scale. The work of these investigators was very complete and the results extremely valuable for the population which they examined. A critical examination, however, of the tests employed will show that many of them depend on the ability to use words in definition and in stating comparisons. Such a power depends largely on training and not solely on native ability. In this respect the scale is clearly not applicable to illiterates, and experience in applying it literally to ignorant immigrants has amply demonstrated this fact.

A careful study of the Binet-Simon scale is extremely useful, and every one who undertakes to make examinations of mental defectives should be thoroughly familiar with it, as it forms an important foundation on which to build up a plan of examination suitable and especially devised for those who have had no educational training or the advantage of association with educated persons.

All the foregoing applies to the purely mental symptoms of amentia. There may be present in these cases disorders of the special senses, facial and other physical deformities, speech defects and muscular incoordination. These conditions are so frequently found in persons who are sound mentally that they have but little value in making a diagnosis in the milder degrees of defectiveness. Of course the idiots and some imbeciles generally present some physical signs which immediately suggest their mental condition, but this is not the rule in the feeble-minded.

The low narrow forehead, receding chin, closely set eyes, protruding and misshapen ears, and other facial irregularities so often referred to as the "signs of degeneracy" have not the importance in indicating mental deficiency which was at one time supposed. A great many feeble-minded persons on ordinary inspection present no physical signs whatever which would indicate real lack of intelligence, and but little importance can be placed on facial appearance as a means or aid to diagnosis.

It is well known that some workers in this field assert that they can pick out the defective from the normal by visual inspection alone; but when interrogated as to just what the signs are their answers are vague, uncertain and unconvincing. The statements that the suspects "lack soul in their eyes" or that "there is a something about them which it is impossible to describe, but which we can readily recognize," are too unscientific and absurd to merit serious consideration. It has long been recognized and proved by many amusing errors that the facial appearance is not a real guide to the true character, and it is unfortunately, for our purposes, equally true of the mentality. Furthermore, when these observers were actually put to the test, it was found that they were not able to select cases any more accurately than physicians who frankly confessed that they laid claim to no such special ability.

It is true that the aments may be divided roughly into two classes. Some are dull, apathetic, slow in their movements, and do not pay the usual attention to their surroundings. These, by their air of preoccupation and obvious lack of normal interest in what is going on around them may in some instances excite suspicion as to their mental soundness. The others who are overstimulated, always in motion and whose attention is easily aroused but cannot be held, would certainly afford no clue on casual inspection, but often, on the contrary, impress one as being unusually bright.

Muscular incoordination is so common and so marked in many of these cases that there is reason to hope that at some time it will be an important aid to diagnosis. At present we have no way of telling ordinary awkwardness and clumsiness from the incoordination of amentia; but in the future as these conditions are more carefully studied, points of difference may be discovered which will enable us to separate the two.

It would seem to be unnecessary to warn the medical examiner against mistaking the mental confusion and muscular incoordination which sometimes occurs in acute febrile disorders like pneumonia, typhoid fever, tuberculosis, uremia, etc., for some permanent mental disability; but since the error has occurred, it is well to be on one's guard against it.

SUMMARY

There is no one test for feeble-mindedness, and only by a routine examination of all the mental faculties can we make an accurate diagnosis.

The amount of acquired knowledge and the capacity of the mental functions should both be measured.

Physical signs and facial appearances are of but little use in picking out defectives.

The examination should be conducted along scientific lines with a clear comprehension of the psychologic basis of all the tests employed.

NOTE: Some of the stories given above are original. The remainder were obtained from various sources.

THE PRACTICAL APPLICATION OF THE ROENTGEN METHOD TO GASTRIC AND DUODENAL DIAGNOSIS *

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What we wish to bring to attention is not so much the theoretical aspect of the Roentgen diagnosis of gastroduodenal lesions, or a complete review of what others have done in this field, but just what we have found of practical value in our study of this part of the tract. We are frank to confess that there has been, as in all pioneer work, considerable criticism as to the value of this method. Undoubtedly many errors have been committed, and much discredit has thereby been cast on this procedure. This state of affairs has largely been brought about by several conditions.

In the first place, the pioneers in this work developed a technic which relied largely, if not exclusively, on fluoroscopic examination. By this means they worked out a system of diagnosis which may be called "diagnosis by symptom-complexes"; by this, we mean basing the diagnosis chiefly on the presence of various functional disturbances, hypermotility, hypomotility, exaggerated peristalsis, spasm, etc. This method, the "inferential or indirect method," is definitely opposed to what may be called the "positive or direct method"; that is, an attempt to demonstrate, if possible, the actual anatomic lesions themselves. This is the method which Dr. L. G. Cole of New York has so brilliantly developed.

We do not say that the fluoroscopic method is of no value. It certainly has its valuable applications, as we shall later show; but the careful production of serial plates frequently gives important evidence, especially positive evidence, in regard to gastric and duodenal lesions, that no one can find on the fluorescent screen.

The second source of trouble has been that many clinicians, largely internists, have visited busy clinics abroad, and have become enthusiastic over the possibilities of Roentgen diagnosis. They have returned to this country, prepared as they thought, to make their own Roentgen examinations. In the vast majority of cases, however, they have not had sufficient technical experience or a proper acquaintance with all the various sources of error, which comes only from doing the work continually. As a result, their chief productions, aside from errors of diagnosis, have been in enlarging the literature with comments on the inefficiencies of the method.

The third source of error, and one which is quite serious, is due to allowing the clinical diagnosis to bias the Roentgen diagnosis. This condition necessarily exists when clinicians make their own Roentgen examinations; but outside of this, many Roentgen specialists allow themselves to be persuaded by their consultants into making positive diagnoses when the Roentgen evidence is very slight or entirely negative. We should refuse to make a Roentgen diagnosis unless we have what can be considered positive Roentgen evidence.

What we mean by this is the presence constantly, on a series of plates, of a definite abnormality in the contour or structure of the bismuth mass. In connection with this, we wish to mention here that probably the greatest value in the Roentgen diagnosis of the gastrointestinal diseases lies in the possibility of classifying cases into medical or surgical categories. It is only in those cases which may be classed as surgical that we feel we are able to obtain really positive Roentgen evidence.

We shall now proceed to a consideration of the various pathologic conditions in which the Roentgen examination can be of definite help to the clinician. First we shall take up the question of gastric ulcer.

With regard to acute, simple, peptic ulcers, if we rely on the Roentgen evidence alone, either fluoroscopic or by means of plates, we are sure that a considerable number will be overlooked. When we say acute, simple, peptic ulcer, we mean simply mucous membrane erosion, with no invasion below the submucosa, and no considerable cicatrix. If we have good luck we may find the so-called "incisura," or sharp incutting of the bismuth contour. This is due to the reflex tonic spasm of the circular muscles. If, however, this is not found, and the size, shape and position of the stomach are normal, then there is no positive basis left for diagnosis. Some investigators are willing in such cases to make an inferential diagnosis of gastric ulcer from the presence of tender points and six-hour residue alone.

The more we have accumulated evidence on this subject, the more we have become convinced that six-hour

* Read before the New York Academy of Medicine, at the annual meeting, Jan. 15, 1914.

gastric stasis is the least important factor in Roentgen bismuth diagnosis. The investigators who developed the idea of bismuth residue as a diagnostic factor always used the standard Rieder meal, consisting of 40 gm. of bismuth salts in 300 c.c. of cooked cereal. The workers who have attempted to transfer these conclusions bodily to their own cases have used a variety of test-meals, ranging from 300 to 600 c.c., and containing from 40 to 100 gm. of bismuth or barium. As a basis they have also used water, plain milk, malted milk, buttermilk, mashed potato and a variety of other mixtures. It is quite obvious that conclusions based on thousands of cases carried out under a similar technic cannot be transferred without change to a dozen other methods of investigation.

Besides this, however, and really what is much more serious, six-hour stasis is in itself merely a symptom. It depends on so many causes that any attempt to make a diagnosis from its presence alone is nothing more than inferential.

It is just this method of inferential, or indirect diagnosis, that we wish to protest against. In our attempt to outline what positive aids can be obtained from the Roentgen diagnosis, we feel that we must, to be fair, lay very little stress on six-hour stasis as such.

The same criticism can be applied to the more or less general spasms which are frequently seen in various parts of the stomach. The presence of gastric spasm is one of the most potent sources of error with which we have to contend. It may be due to gastric or duodenal ulcer, gall-bladder disease, appendicitis, renal calculus, pelvic inflammation, diseases of the nervous system such as tabes, chronic morphin, nicotin and lead intoxications, the clinical symptom-complex known as vagotonus, and still other causes not yet clearly defined. With such a variety of causes it is obvious that spasm is likewise merely an inferential bit of evidence.

We must repeat then that the positive diagnosis of acute, simple, peptic ulcer is frequently impossible; but even here, when there is merely negative evidence, the value is still great in placing the case in the medical and not in the surgical class. We do not believe that there are many surgeons who will operate on an acute, simple ulcer, apart from perforation or extreme hemorrhage, when there is no mechanical or other disturbance shown by the Roentgen method.

When we come to a consideration of chronic gastric ulcers, the situation in most cases is quite different. Here there is usually a production of scar tissue, or the presence of considerable erosion and penetration. In these cases the bismuth outline will show the presence of excrescences, outpocketings, niches and hour-glass contractions.

We must always be on guard against a purely spastic pseudo-hour-glass formation. Usually, repeated examinations will clear up the diagnosis. The evidence of perigastritic adhesions is usually best obtained by fluoroscopic examination.

Likewise the fluoroscopic method is of value in observing the chronic ulcers when found in the cardiac or median portions of the stomach. When we come to the region immediately adjacent to the pylorus, positive pathologic changes which are too small to be detected on the fluorescent screen can be seen constantly on the plates. By means of plates taken in the lateral position, views may be obtained of the anterior and posterior walls of the stomach, and a lesion detected which cannot be observed in any other way.

In all of the cases that we have examined up to date, we have failed as yet to find a single case of absolutely proved gumma of the stomach. Still we do not question that such a condition can exist, and we must guard against its possibility. We have, it is true, examined several cases which showed evidence of a tumor of the stomach, and had positive Wassermann tests, with evidence of a luetic involvement of the long bones as well; yet with no one of them was there any later proof against the assumption of coexistent carcinoma and syphilis. Likewise we have had several cases in which there was Roentgen evidence of chronic ulcer and a history of syphilis with positive Wassermann. In none of these cases, however, was the Roentgen evidence itself positive enough to be of differential diagnostic value.

Cancer of the stomach, in spite of improved methods of clinical diagnosis, and the wonderful surgery of to-day, is still the most deplorable condition known in the gastro-intestinal tract. The responsibility for this condition must be placed on the shoulders not only of the general practitioner, but of the special internist as well. Patients are often made so comfortable by medical means under a diagnosis of gastric neurosis or some similar diagnosis, that they easily go far beyond the operative stage. But even when all the modern methods of diagnosis are called into play, and careful examinations are made of the gastric contents, stools and blood, when a diagnosis of carcinoma is made, it is by no means early. In these cases the carcinoma is really well defined. This is not what we mean by early diagnosis of carcinoma. We must try to discover it when there is some hope for cure by radical surgery; that means before a positive diagnosis can be made by clinical methods alone. It is in the employment of the bismuth-Roentgen method that we know we have a positive aid. This method is especially important in that large number of cases in which the carcinoma is situated in the fundus of the stomach. Here there is no pyloric obstruction, and positive clinical evidence is usually entirely lacking. We are already discovering many of those overlooked early fundal cases, and as our technic advances we expect to discover more and more. The early diagnosis is based partly on the presence of irregular defects of filling, and partly on abnormalities of peristalsis as observed both on the fluorescent screen and on the plates.

Although one cannot be positive of the differential diagnosis, in every instance, between old ulcer and the malignant degeneration of old ulcer, still, in the majority of carciniomas, the defect in the bismuth mass is usually so suggestive that we feel it is our duty in such cases to advise strongly for surgery of the radical type, such as resection, and against that so much abused, palliative operation of gastrojejunostomy. Frequently the lesion is so small and so early that there is no marked change in the gastric secretions.

The next important, and probably the most easily diagnosed condition of the gastro-intestinal tract, is duodenal ulcer; yet even to-day the statement is continually made by roentgenologists that the positive diagnosis of duodenal ulcer by means of the Roentgen ray is impossible. This is true not only of investigators in this country, but especially of European observers. With the latter, it is again the fault of too much reliance on the fluoroscopic method. Cole of New York, by his methods, was the first to really make the positive Roentgen diagnosis of duodenal ulcer. Briefly, we can epitomize our ideas about this subject in a few propositions:

1. Ninety-five per cent. of all duodenal ulcers appear on the superior surface of the duodenum with the cicatrix extending either posteriorly or anteriorly or both, but rarely on the inferior surface.

2. Anatomically, the first portion of the duodenum is a constant entity; that is, in healthy, normal persons it will always present the same smooth, regular appearance.

3. This normal condition can be demonstrated by bismuth in every normal person as a regular, smooth bismuth shadow, of a characteristic shape and outline, the so-called "bishop's cap." Failure to obtain this cap in a normal person is due either to improper technic or to improper bismuth mixtures.

4. If the normal duodenal cap can be demonstrated in every normal person, then the presence on plates of a constant defect in the cap means a real pathologic condition. Right here let us mention that this again means the differentiation between medical and surgical cases. In no case of duodenal ulcer, apart from perforation or extreme hemorrhage, should operation be performed unless the bismuth examination shows a definite, constant deformity of the bishop's cap. The cases in our experience in which this warning was disregarded have mostly proved to be surgical failures.

5. Every duodenal ulcer which is more than a simple peptic erosion has a sufficiently deep cicatrix to deform the bismuth contour. The simple ulcers are clinically negligible in this connection, since every case which finally comes to the physician for help already has an abundant cicatrix.

6. In this connection the negative diagnosis is as valuable as the positive. Every patient in whom a normal duodenal cap can be demonstrated has no indurated or surgical ulcer of the first portion of the duodenum. This fact has been demonstrated to our satisfaction time and time again. We do not believe that any internist, with clinical methods alone, can make as positive a diagnosis of the presence or absence of indurated duodenal ulcer, in every case, as the Roentgen method can; but we reserve this one exception, that unless the roentgenologist is thoroughly trained and carries out the method that has been demonstrated by Cole, this statement might be disproved.

The last condition which we have to speak about is that of gall-bladder disease. In most cases, when there have been repeated infections of the gall-bladder, adhesions will usually form. Frequently these can be demonstrated by their attachments to the antrum of the stomach, the first or second portions of the duodenum, the hepatic flexure or the transverse colon. Occasionally, but not often, the shadow of an enlarged gall-bladder can be seen. This, however, is not definite enough to warrant any positive diagnosis. About the most positive condition we have is the actual demonstration of gall-stones themselves. It is well known that pure cholesterin stones absorb the Roentgen rays very little, and consequently are rarely detected on the plate; but when there has been infection and inflammation, calcium is deposited in characteristic lamellae, and the shadows of gall-stones consequently can be seen.

With our improved methods of technic for soft tissue study, we are at present finding more and more cases in which gall-stones are demonstrated. We believe that in the future, with more attention devoted to this part of the tract, we shall be able to demonstrate stones in nearly every case in which there has been repeated infection.

We have thus far purposely omitted from this paper any consideration of the problem of gastroptosis, or of ptosis in general. Such a discussion has no place in a paper on the practical application of the Roentgen method. Too many assumptions of pathologic conditions have been based on Roentgen evidence that might well have been construed as absolutely normal. Many observers have even gone further and attempted by the Roentgen examination of the alimentary tract to find a cause for various nervous disorders, among them epilepsy. The published results of these investigations show a heaping up of theoretical conclusions on a very shaky base of still disputed Roentgen evidence. We therefore do not feel warranted in discussing this problem further.

To sum up, we believe that by means of the Roentgen bismuth examination of chronic gastro-intestinal diseases we can often obtain positive diagnostic evidence which is unobtainable by any other means. By this method we can usually separate these chronic cases into medical and surgical classes.

Before closing, however, we wish to emphasize that this method is merely one kind of physical examination. It is by no means an independent method, although it frequently gives evidence not shown otherwise. The Roentgen examination should always be preceded by a thorough general physical and laboratory examination. Then, and then only, can we achieve what is after all the ultimate aim: the treatment and possible cure of the patient.

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THE SURGICAL TREATMENT OF SPINAL CORD INJURIES WITH REPORT OF CASES*

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Traumatic injury of the spinal cord, from either fractured vertebrae or bullet-wounds, is of frequent occurrence, and the proper management of these cases is of great importance both to the medical practitioner and to the surgeon. A proper interpretation of the history of the accident, together with a careful clinical examination, will usually afford such an adequate conception of the nature of the lesion that a prompt decision may be reached as to the efficacy of surgical interference. Several roentgenograms should be made whenever possible, but unless the reading is clear, more credence should be placed on the clinical finding and the history of the accident, if it can be obtained.

In fractures and dislocations of the spinal column, statistics show that in about one-third of the cases the cord escapes injury. The displaced bones, however, may immediately spring back into place, leaving the cord contused, compressed or lacerated. If the force is less severe, the canal may be but slightly narrowed, and the cord only moderately contused or compressed.

The history of the onset and development of symptoms is of great importance. When the spinal column has been violently bent, wrenched or twisted, the onset of paralysis may be immediate. It is at once important to determine then, whether the cord has been partially or totally severed, or whether there is only suspension of transmission.

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With complete laceration of the cord, the patient at once becomes paraplegic; anesthesia involving all types of cutaneous sensibility is immediate and absolute; there is retention of urine until the overdistended bladder gives way to dribbling; there is total loss of reflexes; retention of feces occurs, and decubitus may develop within twenty-four hours. When the injury is to the cervical or upper dorsal regions, abdominal distention may appear early and be of serious import.

Whenever this picture is presented following trauma, bullet-wound or stab-wound of the spine, surgery offers no rewards. The axons of the true cord are without neurilemma, and whenever it is cut or lacerated, it never regenerates. These patients must forever depend on the kindly offices of the general practitioner, who will prolong life and comfort by carefully guarding against systemic infection from cystitis, ascending infections of the kidneys and bed-sores.

Surgical interest centers chiefly about those cases which do not present unequivocal evidence of complete severance. In these the results are often most spectacular.

Partial lesions frequently occur which are due to incomplete laceration with contusion, and to compression, either by splintered bone, displaced bone or by clot. With slight or partial lesions, the paralysis may at first be complete, but soon improve, or it may amount to mere muscular weakness.

When the lesion occurs in the cervical region there will be a paraplegia involving both upper and lower extremities. In the dorsal region, there appears a paraplegia involving both legs. Minor lesions may produce a monoplegia, diplegia or spinal hemiplegia (Brown-Séquard type). In lesions of the cervical and dorsal regions the central neuron type is present, but in the lower lumbar and sacral regions the paralysis is always flaccid. In the upper lumbar, the lesion may at first be flaccid and later show a combination of central and peripheral neuron types (Johnson).

The diagnostic and prognostic significance of the zones and areas of anesthesia are at once apparent. The distribution of the areas of anesthesia correspond to the affected segments of the cord. In many lesions their definite location becomes almost a mathematical certainty.

In general, with transverse injuries to the cord, the sense of touch marks the level of the lesion, and both the epicritical and protopathic sensibilities should be determined. In transverse lesions the epicritical faculty is lost at a higher level than the protopathic, and the epicritical loss of tactile sensation usually marks the level of the lesion very accurately (Mix).

In partial lesions the anesthesia may be incomplete, of limited or dissociated distribution, or it may be confined to areas considerably below the lesion.

The reflexes of greatest importance are the plantar and knee-joint. A positive Babinski gives positive evidence of injury to the lateral columns of the cord, in the motor tract. The plantar reflex is absent in lesions of the sacral region, with total destruction of the cord, and the reflexes below that level are abolished. They may be increased in partial cord destruction, or in cord compression, signifying that normal brain inhibition has been interfered with. In several dorsal lesions, the knee-jerk may at first be absent, and later become exaggerated.

An electrical response from the various muscles involved, if present at all, is of importance when considered with other findings.

The operative possibilities in these cases are, of course, limited; but a discriminating diagnosis of the site and nature of the lesion should be made with all promptness, and whenever feasible, operative interference should be resorted to before there is permanent damage to the cord. The inevitable sequence of decubitus and bed-sores becomes almost a real contra-indication because of the danger of contact and metastatic infection.

When gunshot wounds inflicted from the side or front penetrate the spinal canal, visceral injuries must of course receive first attention. Wounds from behind offer the more favorable cases for immediate operation. No case should be considered hopeless until after repeated roentgenoscopy and the study of clinical symptoms, from which it is evident that the cord has been severed or that the location of the bullet precludes a safe operative risk.

Dislocations of the vertebra are not infrequent, and their treatment by extension and mechanical appliances has proved as disappointing as it has hazardous.

A simple laminectomy affording decompression to the impinged or compressed cord has within the past few years given startling results. It has been shown repeatedly that several laminal and spinous processes may be removed with but little detriment to the individual, and with but slight danger of trauma to the cord. The removal of spiculae of bone which penetrate the cord, or compress it, and the early removal of the extradural clots before Nature has attempted to remove them and extensive adhesions have formed, is without doubt a commanding duty of the surgeon. The prognosis with and without operation should be carefully weighed and the subsequent course promptly determined.

Laminectomy is without great operative or postoperative hazard. An incision is made over the spinous processes; the laminae are freed by blunt dissection from the overlying musculature and thoroughly exposed. By means of a chisel, saw or forceps, the laminae are freed close to the transverse processes and removed. An aperture somewhat more than the diameter of the cord must be insured to give free and unrestricted decompression. Care should be taken not to wound or open the dura unless special indication presents.

In separating the muscles from the laminae there is often considerable venous bleeding, which is best controlled by freeing one side and packing with hot saline sponges while the other side is being dissected. Bleeding from the bone after removal of laminae is easily controlled by plugging with a fragment of loose muscle.

A wide exposure of the canal is necessary, and when a decompressive laminectomy is made, the angulation of the cord must be relieved completely by the removal of a sufficient number of laminae. Occasionally it becomes necessary in cases of old fracture to open the dura and examine the cord. Hematomyelias or cysts may be opened and drained.

When the necessary surgical measures have been instituted, the dura should be closed carefully with catgut, the muscles and aponeurosis approximated and the skin closed with linen, reinforced, if desired, with silkworm gut. As a safeguard both to cerebrospinal fluid leakage and to meningeal infection, laminectomy wounds should not be drained. The upper and lower edges of the dressing should be sealed with wide strips of adhesive plaster to prevent contamination.

The scar tissue which forms between the resected laminae is exceedingly fibrous and at times shows reformation of bone (Cushing). The protection of the cord is thereby found entirely adequate. Local rigidity, stiffness and muscular weakness usually disappear within a

few months; after laminectomy, the spine needs no special support, except in cervical fractures, and within a few days the patient may be changed from side to side, bolstered with pillows. Hexamethylenamin should be given for several weeks, the bladder and bowels should receive careful attention, and dependent parts of the body should be padded to prevent decubitus. Some surgeons do not catheterize, depending on overdistention to produce incontinence; while others fear overdistention as favoring cystitis. Laminectomies in the lower dorsal and lumbar regions are often followed by a pronounced abdominal distention, unrelieved by enemas or cathartics, and best managed by small doses of morphin and atropin. As soon as the patient will permit, faradism and light massage may be given once or twice daily, increasing as the condition and improvement warrants.

Elsberg[1] believes that the surgeon should be very conservative in his recommendation of operative interference for recent fracture of the spine with serious injury to the cord. Yet, with bone-pressure threatening destruction of the cord, some of the most startling results are obtained by prompt interference. The following case is illustrative:

CASE 1.—Floyd G., aged 16, while picking chestnuts fell from the top of a tree, striking on his back across a heavy limb. When he reached the ground he was able to walk part of the way down hill, when his legs gave way and he crawled a few yards further. He could make no more progress because of pain in the back. He was carried to his home in an ambulance, and when seen by me two hours later, Oct. 8, 1913, presented a complete paraplegia from the waist down. There was great pain on pressure over the lower dorsal region. Examinations October 9, 10, 11 and 12 showed flaccid paralysis of both legs, with absence of knee-jerks and ankle-clonus; superficial sensation was absent, but deep sensation was slightly present in both legs. There was complete retention of urine and feces. Pressure over the spine on the eleventh and twelfth dorsals caused the greatest pain. Edema in that region prevented the detection of any deformity. The patient was removed to Baroness Erlanger Hospital October 11, where roentgenograms were made; as no deformity could be recognized in the bodies of the vertebrae, a fracture of the arch was diagnosed.

The history of the patient's having walked several steps after striking the ground showed that the paralysis was not immediate and therefore precluded a complete or serious severance of the cord. The destructive effect of pressure was feared, and after localization of the lesion from the upper boundary of the zone of anesthesia, a laminectomy was done. An incision was made from the eighth to the twelfth dorsal vertebra and a fracture of the eleventh dorsal lamina was found with almost complete depression on the cord; the spinous process of the tenth vertebra was crushed and the lamina partially broken. These two laminae were completely excised and a long extradural clot was found, which extended from the tenth to the twelfth dorsal vertebra. This was carefully removed with fine dissecting-forceps, and the cord was seen to be free and uninjured. The dura was not opened. The muscles and aponeurosis were carefully drawn together with catgut, and the skin closed with linen.

There was no postoperative shock. A few hypodermics of morphin and atropin were necessary to control pain and restlessness. On the third day sensation began to return. In one week the patient could move the toes on each foot. Urine was voided consciously on the sixth day. With faradism and massage the patient continued to improve and went home on the eighteenth day. In seven weeks he could walk with crutches, and in eight weeks he went unassisted across the room. He is now fully restored without cystitis or other evidences of the paraplegia except slight prominence of the ninth dorsal spinous process.

Early operation in these cases undoubtedly gives the most satisfactory results. Improvement would probably occur in the course of time and a partial restoration of function, but a laminectomy done before the development of cystitis or decubitus, and before permanent pressure-changes have occurred in the cord, gives opportunity for a more complete and prompt recovery, without the danger of death from intercurrent infection during an expectant course.

In gunshot wounds of the spine with paralysis, if the condition of the patient will permit, and there is no visceral injury to contra-indicate, an immediate operation may often be of advantage. Whenever possible, roentgenograms should be taken, giving both the lateral and the anteroposterior location of the bullet. The wound of entrance should be painted with iodin and a protective dressing applied without probing, until the operative or expectant course is determined.

The following cases which have occurred in my service during the past year will illustrate briefly the question of conservatism.

CASE 2.—John L., aged 29, was brought to the hospital with a gunshot wound at the eighth dorsal vertebra. He was unable to use the body below the hips, but complained of intense pain in both legs, the muscles of which jerked spasmodically. Touching or attempting to move the legs caused intense pain and muscular spasm. Roentgenoscopy showed a flattened bullet lying to the left of the cord at the eighth dorsal vertebra. An incision was made from the seventh to the tenth dorsal vertebra. The aponeurosis and the muscles were retracted. The fractured laminae of the eighth dorsal vertebra were removed and the flattened bullet, embedded in the transverse process, was removed. The dura was slightly lacerated and some extradural clot was present. The cord, however, was not exposed and was uninjured. The wound was closed without drainage, and the patient having made an uninterrupted recovery, was discharged on the twelfth day.

CASE 3.—Maggie S., aged 38, was brought to the hospital with a gunshot wound at the twelfth dorsal vertebra. Roentgenoscopy was not available. There were motor weakness in both legs, intense pain in the back, and hyperesthesia in both legs, particularly in the feet. An incision was made over the lower dorsal region with the wound as a center. The left transverse process of the twelfth dorsal vertebra was shattered and the bullet lay loose in the fragments. The bullet and the fragments of bone were removed. The wound was swabbed out with 2 per cent. phenol (carbolic acid) and closed. It was not deemed advisable to do a laminectomy as the symptoms were rather more irritative than suggestive of pressure. Within three weeks the patient had completely recovered and was discharged.

CASE 4.—Mrs. H. M., aged 22, had an accidental gunshot wound through the midsternum, ranging downward and backward, May, 1912. The patient was not seen by me until September, when a complete paraplegia was found. There were absolute motor paralysis of both legs and complete anesthesia. Knee- and ankle-jerks were lost. Constipation yielded to enemas and cathartics. The bladder acted unconsciously. Operation at this time was refused, and galvanism, faradism and massage with potassium iodid and strychnin were given. Gradual improvement began, and in eight months the patient could elevate and rotate the legs, and control both bladder and bowels. Hip-braces were fitted and it became possible to walk about the room with crutches.

In November, 1913, a laminectomy was done by Dr. A. S. Taylor, New York Hospital, with the following findings, for which I am indebted to him:

"The cord about the first and second lumbar was much constricted and narrowed; pressure seemed greater at the

1. Elsberg: Surg. Gynec. and Obst., February, 1913, p. 125.

upper level of first lumbar. The lamina of the first lumbar was very much thickened and hard, considerable callous formation causing constriction of the cord.

"Laminae of the twelfth dorsal and first and second lumbar completely removed. Dura was opened and moderate adhesion of dura to cord at point of constriction. Right side under first lumbar laminae not extensively separated, all pressure on cord removed. Dura and wound closed."

After operation there were further improvement in sensation and an apparently gradually motor strengthening.

The question of early operation must be determined with each individual case, but spinal decompression by means of an adequate laminectomy should not be postponed without good and sufficient contra-indication.

ECZEMA MARGINATUM OF THE TOES

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Sabouraud has shown that a number of cases that used to be regarded as eczema of the toes are not eczema, but a dermatitis caused by the same cryptogam that causes eczema marginatum of the crotch. This cryptogam, called by Sabouraud the *Epidermophyton inguinale*, is, as its name indicates, a fungus, and resembles but is not identical with the ordinary ringworm fungi. It, however, does not attack the hair, but lives exclusively on the epidermis, hence the name that Sabouraud has given it, the epidermis "phyton" or plant. The locality in which it at least gives rise to its most characteristic skin disease is the inner side of the thighs of the male, especially the left side, against which the scrotum rests. The disease may spread farther down the thigh, and it may also occur in the arm-pits, and in women under the breasts; but Sabouraud has shown, as before indicated, that a frequent situation is the region of the toes and forepart of the foot, where it gives rise to a disease resembling intertrigo or eczema of the toes, and it is usually so diagnosed. Rarely, also, the plant may grow on or between the fingers.

The precise diagnosis of this disease has more than a purely scientific interest: it lends precision to the therapy. In fact, these patients used to go from physician to physician seeking relief and finding none; and even with an accurate diagnosis and an efficiently worked-out treatment it will be seen by the present case how difficult it sometimes is to cure the affection.

History.—Feb. 28, 1913, a draftsman presented himself with an eczema-like affection of the toes of the right foot. The skin between and under the toes was reddened and scaly, but not moist. Along the ball of the foot the skin was roughened and slightly reddened, and in this rough area there were a few bright-red dots which he said itched, and out of which he had the previous evening squeezed a little serum. The margin of this area on the inner edge of the great toe was wavy, red and desquamating. As this margin ran backward along the ball of the great toe and around across the sole to the outer side of the little toe, it was not wavy, but was rough and corneous. On the outer surface of the little toe the marginal line was rough and red. On account of this marginal line, and because only one foot was affected, our suspicions were aroused. The value of noting this margin in arriving at a diagnosis cannot be overestimated: the shrewd Hebra called the disease eczema marginatum, and both Sabouraud and Dudumi speak of the margin as a special feature. On observing the condition we inquired of the patient if he had any trouble in the crotch. He then proceeded to give us the following history:

He roomed with a man who had been a patient of ours for an affection of the crotch and axilla due to the *Epidermophyton inguinale*, which he had acquired presumably in an athletic club. This young man's trouble cleared up under a salicylic acid-sulphur salve. At about this time the present patient also acquired a dermatitis of the crotch, which cleared up under the same ointment as that used by his room-mate. About this time also the present eczema of the toes of the right foot appeared, and this absolutely refused to budge with the treatment that had cured the affection in the crotch.

Culture of the Epidermophyton Inguinale.—In accordance with the advice of Sabouraud, the rough margin on the sole was curetted, and the deeper scales were boiled, not simply warmed, in liquor potassii hydroxidi in a watch-glass, and were then examined with the one-sixth objective. The thick-branched spore-bearing mycelium of the epidermophyton was demonstrated. Other curettings from the deeper lesions were placed in 95 per cent. alcohol in order to kill associated bacteria and fungi. After five and ten minutes, respectively, fragments were placed on 2 per cent. glucose agar. Of those curettings left in alcohol ten minutes none produced any growth, but one of those left in five minutes gave rise at room temperature to a typical growth of the epidermophyton. This culture had a dark-colored center and a citron-colored border, and was umbilicated. After about a month the growth apparently stopped spreading. About two weeks later a new growth, of a perfectly white cottony appearance, sprang up quickly and nearly covered the original culture. A portion of this very tenacious mold, when teased apart and examined with one-sixth objective, showed the many branching club-shaped or fruit-like bodies so characteristic of the *Epidermophyton inguinale*. Subcultures showed these club-shaped bodies precisely as described by Sabouraud, and this type of mycelium with its branching degenerate forms continued constant through further transplantations, until it was finally killed out by an overgrowth of penicillium, its usual fate.

The curious degenerative form with the branching club-like fruit bodies distinguish, as Sabouraud[1] has pointed out, this fungus from the ringworm fungi. It is therefore not a ringworm fungus, as used to be thought, but a mold in a class by itself.[2]

If the preceding had been all this man's history it would have been only the usual one, but there was a personal part that was very interesting. The skin affection of the toes was remarkably stubborn, but before we describe the treatment a short account of the behavior of the fungus on the skin will be given.

BEHAVIOR OF EPIDERMOPHYTON INGUINALE OF THE SKIN

The fungus most frequently occurs in the crotch, especially in men in the left scrotal thigh fold, where the scrotum lies against the thigh, and in women under the breasts, and in the axilla or in any other cutaneous fold, and between the toes in both sexes. Shortly ago we had under observation a woman with the affection under the breasts and in the crotch, an unusual location in her sex. It has even been found in the retro-auricular fold.[2] Eczema marginatum is a disease almost confined to fleshy persons or to the young who are naturally active and perspire freely, and it occurs, as we have seen, in situations in which perspiration is abundant.

The infection begins in the depth of an integumentary fold and spreads outward to where the folds separate,

1. Sabouraud, R.: Sur l'eczéma marginatum de Hebra et de sa très fréquente localisation aux pieds, Arch. f. Dermat. u. Syph., 1912, cxiii, 924.

2. Dudumi, V.: Beitrag zur Kenntnis des Eczema Marginatum (Hebra) oder der Epidermophytie inguinalis (Sabouraud) Dermat., Ztschr., December, 1913, 1109.

dying out as it advances, and leaving behind a dirty, brownish, discolored surface, so that it is only at the active margin that the fungus may be demonstrated. The disease rarely spreads above Poupart's ligament, but it frequently runs back along the fold that exists in fat persons between the perineum and the thigh, and thence up along the internatal fold. These situations are favored evidently because it is in them that the fungus finds warmth and moisture, and also sufficient air for it to flourish. That it requires air as well as moisture is shown by the fact that it is at the edges of the integumentary fold, and not in its depth that the disease remains for years localized. It may even form patches down the inner side of the thigh where the irrigation from the sweating in the groins is often abundant. On the foot the disease tends to remain active between the toes, and to spread by a margin on the forepart of the foot. This activity between the toes is probably due to the warmth and abundant moisture of this region, and also to the circumstance that much air is pumped between the toes in walking, so furnishing the abundant supply both of moisture and of oxygen which the plant seems to require. It is likely that in the present case the disease began, as the history indicates, in the crotch, and that spores or particles of the fungus fell down inside the drawers and stockings, and so reached the forepart of the right foot, where it found a soil suitable for its growth. We shall later discuss why this foot was susceptible.

Castellani's observations in Ceylon on eczema marginatum are interesting as showing the effect of heat and moisture in the development of the fungus — the popular name for the disease there is "dhobi itch," and the patients become spontaneously free on going from the warm humid plains to the cool mountains, to reacquire the trouble on returning to the plains.[3]

In order to cure the disease this fungus had to be destroyed, and Sabouraud has pointed out the drugs to be used, and what is more important, their mode of application. The main reliance is to be placed on chrysarobin ointment, in the strength of 1 or more per cent.

THE TREATMENT OF ECZEMA MARGINATUM

The treatment was begun in the present instance by curetting up the edges of the lesion and the hard scales, and then painting well and intimately into the skin once a day:

Tincture of iodin	10 parts
Alcohol	90 parts

After painting on the iodin an ointment was employed consisting of:

Zinc oxid	10 parts
Lanolin	10 parts
Almond-oil	10 parts

In some places on curetting the sole and toe the epidermis came off in a fine white powder, like wheat flour. In one situation, that the night before had felt uncomfortable and where there were a few pustules, the iodin was seen to stain quite deeply, as it does when a fungus is present (Allan's sign).

A few days after this we began the chrysarobin-salicylic acid application. We had the patient rub well into the toes and fore part of the foot in the morning an ointment consisting of:

Salicylic acid	1 part
Ointment	50 parts

We had him also butter this ointment on a piece of cloth and attach it to the toes by a loop of thread, and flap the buttered side of the cloth against the sole in drawing on the stocking. The loop around the toe prevented the cloth from slipping back on the foot, and the walking which the patient did during the day massaged the ointment into the skin. At night, after any loose epidermis had been removed, the chrysarobin ointment was rubbed in. It consisted of:

Chrysarobin	0.3 part
Lanolin	15.0 parts
Petrolatum	15.0 parts

The affection still persisted but lost its specific character and resembled more an uncomplicated eczema, which we for a time supposed it to be. In fact it is not so uncommon to find an eczema to persist after its immediate cause has been eliminated, as scabies, for instance, may start an eczema that will endure after the itch-mite has been destroyed. We therefore stopped the use of chrysarobin as being irritating, and treated the affection as an eczema.

It was about this time that we noticed another peculiarity in this man's case. He was anemic (blood-color 74 per cent. on the Dare instrument), the skin over the right shin pitted, and the veins of the right leg were larger than those of the left. It was thought that this condition of affairs was keeping up the eczema. For some time the affection seemed to improve, and then pustules began to appear as when the patient first came under treatment, and a thorough search in the deep scales again demonstrated typical large mycelial threads with large spores. The treatment, therefore, had not been effective in killing out the fungus. The fungus is by no means easily found when it is present. Many negative examinations were made in this case, for example. The under surface of the deep scales should be examined, and, as before mentioned, the scales should be boiled in liquor potassii hydroxidi in order to make the mycelium spores visible.

Seeing that we had failed to destroy the fungus, we determined to use more energetic means to clear off the hard thick epithelial covering of the sole. We also decided to use a much stronger chrysarobin ointment.

At night the patient was instructed to apply a lotion consisting of:

Solution of aluminum acetate	60 parts
Saturated solution of boric acid	600 parts

This was applied soaked in a cloth, which was wrapped around the fore part of the foot, and then the whole was enclosed in a rubber-lined bag such as is sold in drug-stores to hold sponges. A bandage was then applied over all to keep the dressing close to the foot. The next morning after an all night application of the dressing the epithelium was sodden and soft, the acetic acid in the solution of aluminum acetate naturally contributing to this result. In the morning a strong salicylic acid ointment was applied that was well rubbed in during the day in walking about. The salicylic acid ointment employed was:

Salicylic acid	6 parts
Petrolatum	44 parts

When in this way a good denudation of the epithelium was secured a strong chrysarobin ointment was well rubbed in:

Chrysarobin	1.5 parts
Lanolin	15.0 parts
Petrolatum	15.0 parts

It is noteworthy that even after the skin was denuded of its hard epithelial covering, the application of this chrysarobin ointment did not trouble the patient. It effectually killed the fungus, however, and cured the disease.

Sabouraud[4] says that he finds this disease of the feet to be very frequent, having noted twenty-three cases in a year and a half as opposed to two cases of true eczema of the same region and one case of ordinary ringworm of the plantar region of the type described by Mouktar. This phase of the disease does not seem to be nearly so frequent with us, as we have found only this case of the foot and one of the hand. In the crotch and in the

3. Alexander, Arthur: Beiträge zur Kenntnis des Eczema marginatum, Arch. f. Dermat. u. Syphilis, May 1912, p. 22.

4. Sabouraud R.: Arch. f. Dermat. u. Syph., 1912, cxiii, 939.

axillae it is much more frequent, occurring occasionally as epidemics. Its comparative rarity may be due to the cool climate of California—our winters are not cold but cool, and our summers are cool and even cold, so that we have a temperate climate the entire year.

In view of the clinical findings, the occurrence and unusual persistence of the disease on the right foot is interesting, as showing some of the factors contributing to susceptibility to this disease. It will be remembered that the young man was anemic, that the skin over the right shin pitted on pressure, that the veins of the right leg were larger than those of the left, and that the patient was a draftsman, so that he had to stand a great deal. We could not elicit from him by question or by observation that the right foot was more sweaty than the left. The anemia and the circulatory imperfections would tend, however, to increase the carbon dioxid in the blood of the foot above the carbon dioxid optimum, and therefore would lower the tissue resistance. We also know that anemia, increased pressure in the blood-vessels as in standing and in varicose veins, and increase of carbon dioxid in the blood above the carbon dioxid optimum all favor increased transudation of serum.[5] We also know that an increased amount of serum in the mucous layer of the skin tends to increase the thickness of this layer (acanthosis) and also causes hyperkeratosis of the horny layer (parakeratosis). The affected region in this case was parakeratotic and hyperkeratotic, and this constituted the chief difficulty in treatment. This hyperkeratosis had to be softened down by increasing the energy of our keratolytics, and we here wish especially to draw attention to the employment of solution of aluminum acetate as a keratolytic, and to its prolonged application as a compress enclosed in a rubber bag. We also in this case had to increase the strength of the mycocide. The actual contact of the chrysarobin with the fungus brought about by the denudation of the deep epithelial layers is of the first importance in the treatment. The strength of the chrysarobin ointment must also be of importance. Sabouraud, as above indicated, employs a 1 or 2 per cent. ointment. Whitfield[6] uses a 10 per cent. application composed of:

Chrysarobin	3.6 parts
Chloroform	10. parts
Alcohol	10. parts
Acetone	10. parts

We employed in the case here reported a 5 per cent. chrysarobin ointment. A 5 per cent. ointment would have a much stronger effect on the deeper layers of the skin than a 5 per cent. solution in acetone.

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5. Fischer, for instance (Physiology of Alimentation, 1907, p. 628), is of the opinion that an increase of carbon dioxid markedly increases the affinity of the colloids for water.

6. Whitfield, Arthur: Eczematoid Ringworm of the Extremities and Groin, Brit. Jour. Dermatol., December, 1911, p. 385.

The Careless Midwife and Ophthalmia.—Between the months of June and September, 1913, the commission [Ohio Commission for the Blind] investigated in one city cases in the care of seven midwives, six of whom were licensed, in which nine infants were found to have ophthalmia neonatorum and for which a microscopic diagnosis showed the presence of gonococcus infection. In no case did the midwife make any attempt to report or secure treatment for the condition. In every case, however, information concerning the condition reached a nurse in time to secure expert treatment and save sight in eight and partial sight in one case.—Marian A. Campbell, in *Ohio State Med. Jour.*

PARATYPHOID FEVER

WITH REPORT, INCLUDING POST-MORTEM EXAMINATION, OF A FATAL CASE OF THE "A" TYPE

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Since fatal cases of paratyphoid fever of the "A" type are apparently of rare occurrence, while because of this the pathologic anatomy is founded on a very few cases, and since the differentiation of this disease from true typhoid is of considerable importance, it would seem that anything which might contribute to the clinical history, bacteriologic findings or pathologic anatomy of this infection is of value. With this in mind, the present study was undertaken.

REPORT OF CASE

Patient.—A teamster, aged 34, American, widower, was admitted to the Hospital of the Good Shepherd, Oct. 30, 1913, complaining of a "general weakness" which had existed for three or four weeks prior to his admission.

Previous History.—The patient's family history is unimportant. He had had the usual diseases of childhood. When a young lad, as a result of a blow on the head from a large iron bar, his skull was said to have been fractured, though it was not operated on. According to patient's sister, he has since not been normal mentally, and because of this was unable to obtain an education. The patient says that at the age of 14, as a result of smoking cigarettes, he had a "cigarette" cough and since has not used them. He is temperate of habit, using tobacco, tea, coffee, beer and wine in moderate quantities. He denies venereal history.

Present Illness.—The patient says that three or four weeks ago, he had a hemorrhage from the nose though he did not spit or vomit blood. During the last two weeks, a cough with a slight expectoration, which he has had for some time, has grown worse and, although not severe, has caused more trouble during the day than previously. During his illness, patient has had much stomach trouble attended with nausea and poor appetite, but no vomiting. No pain has been present in the stomach or abdomen. He is able to walk only a short distance and can stand but for a few moments without great exhaustion. October 26 the patient complained of chilly sensations followed by sweats, which lasted all that day and part of the next. The sister of the patient says that for two or three days before admission he had had a morning temperature of about 102, rising to 103 in the evening.

Physical Examination.—Patient is thin and emaciated (thinks he has lost weight in the last two weeks), has an anxious look and does not seem to comprehend easily or answer questions readily.

Head: Normal in shape; no scars. A slight depression all the way across forehead. Pupils equal and moderately contracted; react to light and accommodation. Face flushed and skin dry and rough. Nose apparently normal, but mucous membrane covered with dry crusts. Mucous membranes of the lips and cheek pale and dry, with many cracks on the lips. Tongue protruded in the midline without tremor; dry and covered with a thick white fur; a number of deep fissures on the upper surface. Teeth in poor condition and covered with sordes. Gums and mucous membranes bleed easily. Throat red and dry. Facial expression dull and apathetic.

Glandular System: No palpable glands.

Circulatory System: Pulse soft and regular and easily compressible. A slight degree of arteriosclerosis present. Heart-borders, upper in third interspace; right at the left margin of the sternum, and left 4 inches from the midsternum. Apex-beat palpable in the fifth interspace, 3½ inches from the midsternum. Sounds weak and fairly rapid, but regular. No murmurs heard.

Respiratory System: Lungs are normal to percussion and auscultation on the anterior surface. Posteriorly, right apex and left apex are normal to percussion and auscultation. Below the angle of the scapula, the right side is somewhat higher pitched, and a few fine mucous râles are heard below the scapula and over the base. A few râles are heard also over the right axillary region below the seventh rib. The left side, below the angle of the scapula, is normal to percussion and auscultation, but a higher note and a few moist râles are heard over the left base. This does not change with the change of position of patient. Tactile and vocal fremitus seem to be somewhat diminished over the back on both sides.

Liver: Relative dulness from the fourth to the sixth rib; absolute dulness from the sixth to the free border of the ribs. Not palpable, and not tender.

Spleen: Extends from the seventh to the tenth rib in the midaxillary line and is not palpable.

Abdomen: Soft and tympanitic. No evident masses and no points of tenderness on palpation.

Skin: A general erythematous blush on chest and back, fading on pressure. A few rose-spots on the abdomen and chest.

Provisional Diagnosis.—Typhoid fever.

Daily Notes.—November 3: Temperature higher, and patient seems weaker and more dull. Tongue dry and tremulous, and abdomen tense. Heart-sounds are weak, but regular. Widal negative for typhoid agglutinins.

November 6: Temperature lower. Patient dull and disinterested. Abdomen distended, but not hard. Blood-culture negative.

November 7: Temperature still continues high and even. Sponges are used to reduce the temperature if above 101 F. Patient says that he feels much better. No point of tenderness over the abdomen.

November 8: Patient is delirious and picks at the bedclothes.

November 10: Apices of both lungs are high-pitched. Right lung posteriorly is dull below the spine of the scapula, and coarse mucous râles are heard over the greater part of the lower lobe. Left side is apparently normal.

November 11: Temperature 101; pulse 120; respiration 36. Abdomen somewhat distended, but no finger-point tenderness and no rigidity. Widal positive, with *Bacillus paratyphosus A*. Widal negative, with *B. paratyphosus B*.

November 12: Patient apparently worse. Temperature about the same; respirations fast and labored. Some rigidity of the neck muscles. Abdomen still somewhat distended. Blood culture positive for *B. paratyphosus A*.

November 13: Localized area of dulness about the size of an orange present over the right lung below the angle of the scapula. Bronchial breathing over this area, and a few fine râles heard. Left lung dull along the spine and breath sounds are blowing in character. No râles heard. Abdomen the same as previously. Patient apparently better.

November 14: Patient was restless and delirious all night. He had seemed somewhat improved for the last two or three days, but toward morning, the pulse-rate increased, respirations increased and became labored, and quite suddenly about 7 a. m., the patient died, it being approximately the twenty-ninth day of his disease.

Temperature, Pulse-Rate and Respirations.—The record of these is obtained from the chart.

Urine Examinations.—October 30: Amber color, acid reaction, specific gravity 1.030, trace of albumin present, no sugar, Diazo reaction positive.

November 7: Dark amber color, alkaline reaction, specific gravity 1.020, no albumin, no sugar.

November 8: Dark amber color, acid reaction, specific gravity 1.020, trace of albumin present, no sugar, few pus cells present.

Blood Examinations.—October 30: Leukocytes 7,000, of which 50 per cent. were polymorphonuclears, 43 per cent. small lymphocytes, 5 per cent. large lymphocytes, 2 per cent. unclassified.

November 3: Widal negative (*B. typhosus*).

November 6: Blood-culture negative.

November 10: Leukocyte count 6,800.

November 11: Widal negative (*B. typhosus*). Widal negative (*B. paratyphosus B*). Widal positive (*B. paratyphosus A*).

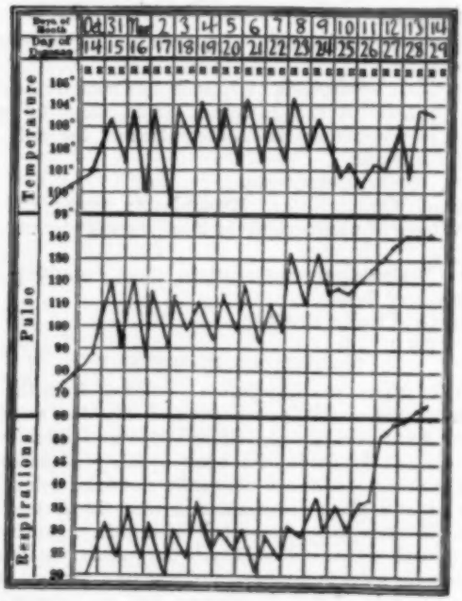
November 13: Blood-culture positive. *B. paratyphosus A* isolated.

POST-MORTEM EXAMINATION

Necropsy done by Dr. Parsons, under the direction of Dr. Waldorf, pathologist to the Hospital of the Good Shepherd, three hours after death. Head not opened. Body that of a poorly nourished man 163 cm. long. Rigor mortis very marked; livor mortis in dependent parts. Pupils dilated and equal.

Peritoneal Cavity.—No free fluid. Peritoneum smooth and glistening. Mesenteric lymph-nodes enlarged. Appendix normal in position and appearance, no adhesions. Foramen of Winslow open. Spleen apparently normal in size and position.

Pleural Cavities.—No free fluid. Lungs apparently normal in position and lobulation. Numerous small adhesions on right side at apex and base and on left side laterally and at



Record of temperature, pulse-rate and respiration of patient who died on the twenty-ninth day of disease.

base; so firm at base as to strip the pleura from diaphragm when lungs were removed.

Pericardial Cavity.—About 80 c.c. thin, straw-colored fluid.

Heart.—Weight 285 gm. Left ventricle in systole, right ventricle in diastole. Heart muscle brownish-red. Wall of left ventricle measures 1.2 cm., right ventricle 0.5 cm. in thickness. All valves without evident lesion. Mitral orifice measures 9.2 cm., aortic orifice 6.2 cm.

Lungs.—Right, weight 960 gm. Crepitant throughout, decreased posteriorly and deep red. On section, bloody fluid exudes from cut surface. Tissue very friable. When pinched there is uniform crepitation although this is much less marked than usual. Odor of tissue is foul. There are several areas from 0.5 to 1.5 cm. in diameter where tissue seems to have disintegrated.

Left Lung: Weight 700 gm. Tissue deep red, though everywhere crepitant. On section, condition much the same as in right lung.

Spleen.—Weight 160 gm., not apparently enlarged. Organ somewhat deeper red than usual. On section tissue friable, usual markings not distinct.

Gastro-Intestinal Tract.—Stomach, duodenum and jejunum are without evident lesion. In the ileum there are many

rather superficial ulcers opposite the mesentery which have greenish-gray necrotic bases and raised hyperemic margins that extend 2 to 3 mm. from the outer edges of the bases. These ulcers are elongated and their long axes are parallel with that of the gut. None has perforated the bowel. They are most numerous about 1 meter from ileocecal valve. There is one area about 9 cm. long where there are nearly continuous ulcers. Peyer's patches do not seem to be particularly involved. Nearly entire ileum seems more hyperemic than usual. There are numerous pin-point hemorrhages in many areas.

Liver.—Weight 1,720 gm. It is somewhat more red than usual. On section, markings distinct.

Kidneys.—Each weighs 140 gm. They are apparently normal in position and somewhat deeper red than usual. Capsules strip readily. On section, markings are distinct.

Anatomic Diagnosis.—Ulceration and hyperemia of ileum; enlarged mesenteric lymph-nodes; bilateral pneumonitis; bilateral pleuritic adhesions; congestion of spleen, liver and kidneys.

Microscopic Description and Diagnosis.—Ileum: Ulcers involving mucous surface. Apparently do not involve muscle. Peyer's patches not involved. Mucous membrane not undermined by ulcers.

Mesenteric Lymph-Nodes: Hyperplasia. Many endothelial cells present.

Spleen: No hyperplasia of lymphoid elements. Acute congestion present. A few ill-defined areas about 0.1 mm. in diameter in which there is disintegration of the cells and of most of the nuclei.

Lungs: Bronchopneumonia.

Bronchial Lymph-Node: Hyperplasia; many endothelial cells; evidence of phagocytosis of black pigment by endothelial cells.

Liver: Beginning central necrosis. Cloudy swelling of cells near center of lobule.

Kidneys: Cloudy swelling.

BACTERIOLOGIC EXAMINATION

From the blood two days before death and from the spleen, gall-bladder, mesenteric lymph-node and intestine, at necropsy, a rather short, Gram-negative, actively motile bacillus was cultivated and isolated. On agar a fairly abundant gray growth is seen. Bouillon is uniformly clouded. Gelatin shows a gray growth along the stab, and there is no liquefaction present. Litmus milk inoculated with this organism shows an early and permanent acidity. On potato the growth is invisible. No indol is produced in Dunham's peptone solution. Acid and gas is formed in glucose, but no fermentation is evident in lactose or saccharose. Subjected to the agglutination test with the patient's serum, this organism, as well as a "stock" paratyphosus A culture used for control, is agglutinated in dilutions of 1:40, 1:200 and 1:1000.

The patient's serum tested with "stock" cultures of *B. typhosus* and *B. paratyphosus B* shows no agglutination power in any of the preceding dilutions. Normal serum controls were negative.

Because of its morphology, staining characteristics, and active motility, and the results of growth on ordinary mediums (especially in sugar broth, in litmus milk and on potato), and because of its specific agglutination, the organism isolated in this case is identified as the *B. paratyphosus A*. This identification, in connection with the clinical history and pathologic findings, serves to make possible a diagnosis of paratyphoid fever of the "A" type.

COMMENT

The pathologic anatomy of these paratyphoid infections is interesting and important. Because the mortality rate is low the pathology of the condition is founded on a few cases. In a study of the literature paratyphoid B infections seem to have been the more fatal, consequently more is known concerning the pathologic anatomy of this type, and the post-mortem report in the above described case of the "A" type will be an important addition to the literature, inasmuch as only a few such necropsy reports on paratyphoid of the "A" type have ever been published.

In true typhoid the most evident lesions are confined to the lymphoid tissues. The intestines usually show an involvement of Peyer's patches ranging from a slight swelling to a marked proliferation and even ulceration. The mesenteric lymph-nodes show all grades of proliferation and swelling. The spleen is also involved and shows swelling and congestion. The toxins of the bacilli may cause lesions in various other organs. These specific lesions of true typhoid are not as a rule found in paratyphoid.

From the small number of post-mortem examinations of paratyphoid (only a few of which have been of the "A" type) reported in the literature, it would seem that there are no specific anatomic lesions associated with the disease. The mesenteric lymph-glands are usually unchanged. The intestinal lesions vary from a simple, mild ileocolitis to definite ulceration. These ulcers are usually superficial and as a rule do not involve the Peyer's patches. In fact the Peyer's patches and solitary follicles have shown little or no change in practically all of the cases reported.

On the other hand, splenic enlargement has usually been present and did not differ from that seen in true typhoid. Wells and Scott, in their work on the "Pathological Anatomy of Paratyphoid Fever,"[1] founded on five cases, conclude that "the anatomic changes are simply those of a septicemia, *with splenic swelling*, and occasionally *non-specific* ulcerations in the intestine." In the light of our case this description must be changed to include the possibility of no change even in the spleen.

SUMMARY OF INTERESTING AND ATYPICAL FEATURES OF CASE DESCRIBED

1. Fatal result (most patients recover).
2. Similarity of lesions in intestine with those found in other reported cases, namely, non-specific ulcers, and lack of involvement of Peyer's patches.
3. Enlargement and great increase of endothelial cells in mesenteric lymph-nodes. (These showed little change in other cases.)
4. Normal spleen so far as size and lymphoid elements are concerned. (In practically all necropsied cases, so far reported, the spleen has shown considerable enlargement and change.)

CONCLUSIONS

From a study of this most interesting case, and of the important literature,[2] the following conclusions seem permissible:

1. Paratyphoid is considered rare and not usually fatal. Both of these ideas might be changed with closer scrutiny and study of "Clinical Typhoid" without positive Widal tests and blood-cultures.
2. The spleen is not necessarily enlarged or involved in paratyphoid of the "A" type.

1. Wells, H. G., and Scott, L. O.: The Pathological Anatomy of Paratyphoid Fever; Report of a Fatal Case, with Bacteriological Findings, Jour. Infect. Dis., 1904, 72.

2. Longcope: Am. Jour. Med. Sc., August, 1902. Swan: Am. Jour. Med. Sc., May, 1906, p. 883. Fox: Univ. Penn. Med. Bull., 1905, xvii. Hunt, C. J.: Paratyphoid Fever: A Serologic Study in Relation to the Epidemiology, Arch. Int. Med., July, 1913, p. 64. Proescher, Frederic, and Roddy, John A.: Bacteriological Studies on Paratyphoid A and Paratyphoid B, Arch. Int. Med., March, 1910, p. 261.

3. In health laboratories, or in other places in which these examinations are made, a serum should be tested for paratyphoid agglutinins, both A and B, after the serum has been pronounced negative three times so far as the true typhoid Widal is concerned.

4. More accurate blood studies and cultures should be made in all cases which resemble typhoid.

5. An antiparatyphoid vaccine should be tried in the treatment of the disease, and as a measure of prevention such vaccines should be used either alone or in combination with typhoid vaccine.

Finally, I desire to thank Dr. W. D. Alsever, in whose service this case occurred, for the privilege of making this study and report; to Drs. Waldorf, Preston and Parsons of the Hospital of the Good Shepherd, I am indebted for valuable records of the clinical and pathologic features.

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FURTHER SIMPLIFICATION OF QUANTITATIVE DETERMINATION OF CHLORIDS IN THE URINE*

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Recently Bayne-Jones[1] has published a simplified method for the determination of the total chlorids in the urine, the only apparatus necessary being a stoppered graduated cylinder. His method is an adaptation of the method of Strauss,[2] and does away with the necessity of a specially made and graduated chloridometer. The method depends on the precipitation of the chlorids with a tenth-normal silver nitrate solution containing nitric acid, and ferric ammonium sulphate as an indicator, and titrating back the excess of silver nitrate with a twentieth-normal solution of ammonium sulphocyanate, the whole process being carried out in a stoppered graduated cylinder, and the amount of the chlorids being determined from the amount of fluid in the cylinder at the end of the process, with the aid of a special table computed for that purpose. Bayne-Jones has shown the accuracy of the method, when compared with the Lüttke-Martius modification of the Volhard method, and has shown that the presence of the silver chlorid in the mixture does not affect the final titration. He has also shown that the method is accurate when applied to albuminous urines, without filtration of the albumin.

The method can be still further simplified by adjusting the strength of the solutions to the graduations on the cylinder, so that the reading at the end is practically a direct reading of the number of grams of chlorids per liter of urine, without requiring the use of any tables. The modification also has the advantage of allowing the estimation of any amount of chlorids up to 20 gm. per liter, without requiring dilution of the urine. In this modification the strength of solutions used is the same as of those used in the Arnold modification of Volhard's method.[3] One c.c. of the silver nitrate solution is equivalent to 0.01 gm. of sodium chlorid, or to 0.00606 gm. of chlorin.

For the method as used at present by us the following solutions and apparatus are required:

1. A standard solution of silver nitrate, containing 29.055 gm. to the liter. According to Webster, the chemically pure silver nitrate found on the market is perfectly reliable, and requires only an accurate balance to weigh the exact amount. The formula of this solution is as follows:

Silver nitrate (C. P.)	29.055	gm.
Nitric acid (25 per cent.)	900	c.c.
Ferric ammonium sulphate (iron ammonia alum) cold saturated solution	50	c.c.
Distilled water to	1,000	c.c.

2. A solution of ammonium sulphocyanate (NH_4SCN) of such a strength that 2 c.c. are equal to 1 c.c. of the silver nitrate solution. This is made by dissolving about 7 gm. of the sulphocyanate in 1,000 c.c. of distilled water, and by titration against the standard silver nitrate solution adjusting it by dilution until 2 c.c. are exactly equal to 1 c.c. of the silver solution.

3. A certified, stoppered, graduated cylinder of 50 c.c. capacity. By a series of tests we have found the calibration of the ordinary 50 c.c. stoppered graduated cylinders to be extremely inaccurate. Furthermore, they are graduated only in 1 c.c., and the variations in calibration are too great to allow of accurate results. Bayne-Jones has reached the same conclusion, and we recommend that only the certified cylinders, which are graduated in 0.2 c.c., be used. These are of about the same caliber as an ordinary buret, and the graduations extend over a scale length of about 25 cm., so that differences of 0.2 c.c. or even of 0.1 c.c. are as easily read as from a buret.

The method is carried out as follows:

The urine is allowed to flow from a pipet into the cylinder, which has previously been cleaned and dried, until the bottom of the meniscus is exactly at 5 c.c. The silver nitrate solution is then run in carefully in the same way to the mark 15 c.c. The cylinder is then stoppered, inverted gently several times and allowed to stand for five minutes. If it is not allowed to stand at least five minutes, precipitation of the chlorids will be incomplete, and the reading will be too low. The pinkish color produced by the action of the nitric acid will generally disappear as the following solution is run in, but if the urine be highly colored it is well to decolorize by adding 3 drops of a 10 per cent. potassium permanganate solution, the amount of fluid added in this way being allowed for in the final reading. After standing, the sulphocyanate solution is now run in, preferably from a siphon or from an aspirating bottle with an opening at the side. In this way the sulphocyanate solution may always be kept easily available on a shelf in the laboratory. The sulphocyanate is run in gradually, the cylinder being stoppered and inverted several times after each addition. The rapidity with which the sulphocyanate may be added may be gaged by the rapidity with which the color produced by each addition disappears, the addition being made about 3 drops at a time toward the end of the reaction. This is continued until the pinkish color produced by the sulphocyanate just fails to disappear when the tube is inverted and remains permanent. The stopper is then removed, the cylinder allowed to stand for a few moments, until all of the fluid has run down from the sides, and a reading of the amount of fluid in the cylinder is then taken.

* From the Laboratory of Pharmacology, Medical Department, University of Oregon.

1. Bayne-Jones, Stanhope: Simplified Methods for Quantitative Estimation of Chlorids in the Urine, Arch. Int. Med., July, 1913, p. 90.
2. Strauss: Praktische Winke für die chlorarme Ernährung, Berlin, 1910.
3. Webster: Diagnostic Methods, 1909, p. 193.

If no correction is to be made, as for the addition of potassium permanganate, the number of cubic centimeters of fluid in the cylinder subtracted from 35 now gives the number of grams of chlorids per liter of urine, expressed in terms of sodium chlorid. If V be taken as the final volume of fluid, the result may be expressed by this equation:

$$35 - V = \text{grams of NaCl per liter of urine.}$$

The calculation of this is simple. The 10 c.c. of silver nitrate solution added to the urine is capable of precipitating 0.1 gm. of sodium chlorid. If no chlorid be present it will require 20 c.c. of the sulphocyanate solution to precipitate the silver nitrate, and we have in the cylinder 5 c.c. of chlorin-free urine, 10 c.c. of silver nitrate solution, and 20 c.c. of sulphocyanate solution, totaling 35 c.c., which is the maximum that V may attain. When chlorids are present in the urine, as they invariably are, their amount is indicated by the amount of silver nitrate they precipitate, this being determined indirectly by titrating the amount they fail to precipitate. As each cubic centimeter of silver nitrate requires 2 c.c. of sulphocyanate for precipitation, each 2 c.c. less than 20 of sulphocyanate solution needed for the final titration represents the presence of 0.01 gm. sodium chlorid in the urine used, or each cubic centimeter represents 0.005, or 1/200 gm. As 5 c.c. of urine, or 1/200 liter of urine was originally used, each cubic centimeter of sulphocyanate less than 20 represents 1 gm. of sodium chlorid per liter, and as 15 was the zero point on the scale for the final titration, $35 - V =$ the number of grams of chlorids per liter. In the case of very dilute urines of low specific gravity it is better to start with 10 c.c. of urine, which modifies the formula to

$$\frac{40 - V}{2} = \text{grams of chlorids per liter.}$$

To test the accuracy of this method we have controlled a series of estimations with a method of known accuracy, the Arnold modification of Volhard's method as described by Webster,[3] and the results are herewith tabulated.

NEW METHOD COMPARED FOR ACCURACY WITH THE ARNOLD METHOD

No.	Grams NaCl per Liter Arnold Method	Grams NaCl per Liter New Method	No.	Grams NaCl per Liter Arnold Method	Grams NaCl per Liter New Method
1	14.2	14.4	9	7.2	7.1
2	10.1	9.9	10	0.5	0.66
3	0.8	0.8	11	0.4	0.6
4	5.5	5.3	12	13.1	13.1
5	7.9	7.7	13	6.0	6.0
6	5.6	5.6	14	9.3	9.4
7	3.9	3.8	15	11.0	11.0
8	7.7	7.8			

The method is thus accurate to within 0.2 gm. per liter, when compared with a more complex titration method which is sufficiently accurate for clinical purposes, and can be carried out in ten minutes by any skilled laboratory helper with only the one piece of calibrated apparatus, and it requires no tables for the computation of the results.

Our thanks are due to Miss Hazel Altman of Dr. Selling's laboratory for many of the controlled estimations.

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Knowledge.—Every mind was made for growth, for knowledge, and in its nature is sinned against, when it is doomed to ignorance.—Channing.

TUMOR OF THE MIDDLE CRANIAL FOSSA INVOLVING THE GASSERIAN GANGLION *

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AND
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Cases of tumor of the middle cranial fossa involving the gasserian ganglion are rarely seen and but rarely reported in the literature.

In 1908 Spiller[1] reported two cases which had recently come under his observation. He also reviewed one case presented by Keen, Dercum and Spiller, and one reported by Hofmeister and Meyer in their paper on "Tumor of the Gasserian Ganglion." A few other cases have been noted in the literature.

The case here reported was a tumor of the middle cranial fossa involving the gasserian ganglion.

History.—O. R. (Case A77175), a well-developed man, aged 21, was examined Dec. 10, 1912. Family history was negative for tuberculosis or other chronic diseases, and personal history good, without evidence of syphilitic infection or alcoholic excesses. Three enlarged upper cervical glands had been discovered on the right side of neck twenty-one months previous to examination. Three months later pain developed anterior to the right ear, and the local physician excised the glands, which were thought to be tuberculous, although no microscopic examination was made. From that time until the patient came for consultation pain had been constant in the site of the trouble with intermittent tic-like paroxysms over the entire distribution of the right fifth nerve. The paroxysms occurred once or twice a day and lasted from a few minutes to an hour. Momentary attacks of diplopia and of indefinite objective vertigo were complained of. Following the operation on the glands there had been some stiffness in using the lower jaw. Six weeks previous to our examination deep alcoholic injections of the branches of the fifth nerve had been made with some relief for one week. Two weeks following this procedure an operation was done in the right temporal region, but there were no data to show what was accomplished. For one week prior to coming to our clinic there had been a drooping of the right upper lid.

Examination.—General examination disclosed nothing of note. All reflexes were normal; there was no ataxia in station or gait. Mentally the patient was rather dull and apathetic, and answered questions slowly. A superficial survey of the head revealed a scar on the cheek following the use of a hot-water bottle, as well as those left by the previous operations. A small trophic ulcer was apparent on the right side of the upper lip below and to the right of the nasal ala. The sense of smell seemed to be slightly diminished on the right side. There was a marked ptosis of the right upper lid. The right pupil was dilated and showed no reaction to light or accommodation. There was partial paralysis of all the extrinsic muscles of the right eye, but this was less evident in the external rectus. Vision in the right eye was 20/50 with slight contraction of the fields. The optic nerve-head was pale. Vision in the left eye was 20/20; the fundus, extrinsic muscles, reflexes and fields were normal.

Careful tests showed anesthesia and analgesia of the skin and mucous membrane supplied by the first and second divisions of the right fifth nerve with hypesthesia and hypalgesia in the distribution of the third division. There was also complete anesthesia of the right cornea. A slight exaggeration of the jaw-reflex was noted; the pharyngeal reflex was apparently normal. The sense of taste was absent in the right anterior portion of the tongue. The tongue could not be protruded beyond the lips, as it was impossible to separate the teeth more than ½ inch, which condition was probably the result of

* From the Mayo Clinic, Rochester, Minn.
1. Spiller: Am. Jour. Med. Sc., 1908, cxxxvi, 712, 725.

contracted scars following the previous operations. No weakness of the tongue-muscles was evident. There was a definite decrease of strength in the muscles used in closing the right side of the jaw. A specimen from a slight bulging of the right side of the nasopharynx showed lymphatic tissue only. There was a slight bilateral catarrhal deafness. The sinuses were objectively normal. A roentgenogram of the skull disclosed a trephine opening about ½ inch in diameter in the right temporal region. Diagnosis was made of a tumor of the middle cranial fossa involving the gasserian ganglion.

Operation.—June 6, 1913, an operation was performed in the Mayo Clinic by Dr. Beckman. The Hartley-Krause method exposed a hard mass below the right temporal lobe. The extent of the tumor could not be determined and it was considered inoperable. A specimen examined microscopically showed the tumor to be a small round-cell sarcoma.

The patient died a few months later. No necropsy data were obtained.

The important features in this case are: (1) the enlargement of the right cervical glands; (2) the constant dull pain just anterior to the right ear with paroxysms of sharp pain which involve the entire distribution of the fifth nerve; (3) the absence of symptoms of general intracranial pressure, such as headache, vomiting, choked disk, etc., unless the occasional vertigo and the mental hebetude are considered symptoms; (4) the definite localizing signs such as the anesthesia, the loss of the sense of taste on the right anterior portion of the tongue, the partial paralysis of all the right extrinsic eye-muscles with a nearly complete ptosis, the pallor of the right optic nerve-head, and the large immobile right pupil.

It is possible that the anesthesia became more definite following the alcoholic injections which had been given six weeks previous to our examination. As would be expected, considering the absence of any signs of general intracranial pressure, there was no improvement following the exploration.

In the cases reported by Dercum, Keen and Spiller, Hofmeister and Meyer, and Spiller there was enlargement of the lymphatic glands of the neck. In our case, although no microscopic examination was made by the physician who excised the glands, the history of glandular enlargement just previous to the onset of the symptoms gives strong presumptive evidence of their metastatic character.

The fact that the glands were enlarged three months before the onset of pain makes it probable that the tumor originated from the dura and had gained considerable size before it involved the gasserian ganglion.

SURGICAL TREATMENT OF URETHRORECTAL FISTULAS

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Under the present methods for the surgical treatment of urethrorectal fistulas about 25 per cent. of the cases terminate successfully. This low rate of recoveries is not surprising when it is remembered that the urethra is a curved channel carrying water under pressure and that the fistula is usually located at the most tortuous part. In addition to this, the rectum is in close apposition to the prostate and the recto-urethralis muscle anchors the ampulla of the rectum at a short distance from the membranous urethra.

The standard operative procedures seem faulty in principle.

No one would try to repair a leak in the retaining wall of an irrigation ditch, especially on a curve, by tearing down the sound, natural wall for some distance close to and up into the leak, if this could be repaired in the line of leakage. Still, this is the principle underlying the operative methods usually employed. The perineal body is split at its center, the cut extending back to or into the rectum, in front to the bulb, and in depth down to the urethra; thus, a sound retaining wall many times the length of the fistulous opening is laid open—a wall which is known to be hard to make water tight by suturing. The fistulous tract is cut flush with the urethra and the opening closed by a continuous suture. The condition then is that instead of one large opening, there are several small holes, not water tight, between the sutures. After the removal of the fistulous tract and repair of the rectum, the wound is sutured. The result is that in 75 per cent. of the cases there are, instead of one leak, two—a rectal and a perineal.

The following technic has been worked out and found very satisfactory:

After the usual preparatory treatment, such as curing of strictures, etc., the field of attack is just in front of the rectal wall up to and above the fistula; and then in the line of the fistula. A catheter is inserted into the bladder and retained for several days. If the fistula is located low down, the rectum is loosened from its bed in front and to the sides, while in fistulas high up, the rectum is dissected loose in its entire circumference. If more room is required, the postanal tissue is cut through to the coccyx, which may also be turned back. An incision through the skin is made in front of the anus either half way around, or encircling the anus and back to the coccyx. The sphincter, left attached to the skin, is cut through in front or in front and posteriorly. If the fistula is above the levator ani, this is cut close to the rectum and so also the recto-urethralis and if necessary the deep perineal fascia. This exposes the prostate, bladder and the peritoneal pouch. The dissection should be up to and a short distance above the location of the fistula. As the fistula is reached, it is tied and cut close to the rectum and the fistulous tract is dissected loose up to the urethra; if this is impossible, it is curetted up into the urethra. A purse-string suture is placed around the fistula close to the urethra in the tissue surrounding the tract and tied, leaving the ligature ends long. The tract is removed. Several flaps now are dissected loose alternately on each side of the tied urethral end and stitched in place, one on top of the other, each suture-line being located at a different plane. The long ends of the urethral tie are drawn through the center of the first flap and tied before the flap is stitched into place. The principle here is not only to build up a water-tight, but also a thick wall, thereby bringing the rectum farther away from the urethra. The rectal tie is buried by two or three pleats of the rectal wall. As the ends of the fistulous tract, where they open into the urethra and the rectum, are, as a rule, funnel-shaped, these funnels should be tied and not cut; if they are cut, two large openings are produced which are hard to make water-tight by stitching, while if they are tied, this makes the opening water-tight. If there should be a large opening into the urethra which cannot be tied off, the urethral edges should be apposed by interrupted sutures, the sutures tied and their ends drawn through the center of the first overlapping flap and tied. It generally spells failure to turn up a flap from each side of the urethra, their edges meeting and sutured opposite the urethral suture-line. This is like putting one sieve

on top of another. After a thick wall has been built up between the rectum and the urethra, the rectum is partly twisted and a sound part is sutured to the built-up wall. The levator ani and sphincters are sutured in place. If the postanal space was entered, a good-sized drain is left in there.

If at the time of the operation there should exist both a urethrorectal and a urethroperineal fistula, the best policy is to repair the urethrorectal fistula first, waiting for a future time to repair the perineal fistula, because there would be a too extensive injury inflicted on the periurethral wall in one sitting, and because an open drain through the perineum will greatly assist in relieving the repaired part, until thoroughly healed, from the expansive pressure of the urine. A perineal fistula is easier to repair later on. It is a great temptation to repair the two in one sitting, but the result is generally a failure. In repairing the perineal fistula, the same overlapping, building-up method will give good results.

THE PRESENCE IN THE URINE OF DIALYZABLE PRODUCTS REACTING TO NINHYDRIN

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In a recent article in THE JOURNAL Warfield[1] says:

> It occurred to me that if there was a specific ferment in the blood-serum which was elaborated to split up the products derived from the placenta, syncytium especially, there should be also in the blood-waste, products of the metabolic activity of the growing fetus. These substances had to leave the body by some route and the most logical route was the urinary excretion. These products should be peptones and amino-acids, they should dialyze out and one should then be able to find them by means of the ninhydrin reaction in the dialysate. It was found that actually such is the case.

In support of this theory, tests on seventeen cases of pregnancy are cited, all of them giving positive results; seven cases in the puerperium were tested with the result that "the eleventh day was the earliest to show a negative reaction, while one still showed a faint reaction on the seventeenth day." If correct, these observations would be of the utmost importance and would greatly simplify the "Abderhalden test."

I have carried out a series of reactions in order to prove or disprove these conclusions. The water containing the dialyzers, the glassware, pipets, etc., were all carefully tested for the presence of the ninhydrin reaction before being used. The work was done with the dialyzing thimbles supplied by Parke, Davis & Co., and these had been proved to be impermeable to all but amino-acids by repeated testing and also by a long series of tests with the original technic. Three different solutions of ninhydrin were used.

February 10 the urines of six positively pregnant women were tested for the presence of the ninhydrin reaction, without dialyzing, by boiling 2 c.c. of urine with 0.2 c.c. of a 1 per cent. solution of ninhydrin. The accompanying table shows the results.

It will be observed that whenever the urine was strongly acid, the ninhydrin reaction was negative. This indicates that the acidity inhibits the reaction, a fact that is already well known. An attempt was made to bring out the test by neutralizing these strongly acid urines, but the reaction remained negative. It was further observed that, although a urine may give a strongly positive ninhydrin reaction, if made strongly acid by the addition of acetic acid the reaction will disappear and will not reappear when the urine is exactly neutralized by the addition of sodium hydroxid. The same day, those urines that had given negative tests before dialyzing, were placed in dialyzing thimbles and the dialysates tested at the end of twenty-four hours. All three, that is, Nos. 2, 5 and 6, gave strongly positive reactions with ninhydrin.

February 11 the urines of three women known to be pregnant were dialyzed. At the end of twenty-four hours the dialysate gave a positive reaction in each instance. These urines did not contain albumin and were acid in reaction.

February 12 the urines of ten non-pregnant women suffering from various surgical conditions were dialyzed, and the dialysates tested for the presence of the ninhydrin reaction. Without exception, these urines gave distinctly positive reactions. The reactions of these urines to litmus varied from alkaline to acid, the majority were acid. No matter what the reaction of the urine before dialyzing, however, the dialysate is always neutral to litmus. These urines were voided just before luncheon, and none of them gave a positive reaction with the ordinary tests for albumin.

NINHYDRIN TEST OF URINES FROM SIX PREGNANT WOMEN *

No.	Reaction	Ninhydrin
1	Acid	+
2	Strongly acid	—
3	Neutral	+
4	Neutral	+
5	Strongly acid	—
6	Strongly acid	—

* All urines were albumin-free.

February 13 the urines of four non-pregnant women and two men were tested. One of the men had nephritis, the other was normal. The dialysates from all of these urines gave positive reactions with ninhydrin.

February 14 the urines of four healthy men were tested; the dialysates giving negative reactions.

In view of these results it was thought that the amino-acids present might be accounted for by the action of bacteria on pus and other albuminous matter present in the urine, especially in that of women. To avoid this, the urine was thoroughly boiled as soon as voided, all material used in the tests was sterilized by boiling and the tests were set up under aseptic precautions. Under these conditions ten urines from non-pregnant women suffering from various surgical conditions and two from known pregnant women, were tested. At the end of twenty-four hours the dialysates from eleven of them showed positive reactions with a freshly prepared solution of ninhydrin, and one of them a negative reaction. The case giving a negative reaction was one of carcinoma of the breast.

In regard to the presence of dialyzable substances reacting to ninhydrin in the urines of others than pregnant women, Dr. Warfield says:

> In order to show that in normal urine there are no dialyzable substances which give a positive reaction with ninhydrin, a number of urines from healthy persons were tested. These gave no color reactions.

1. Warfield, Louis M.: The Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women; a Preliminary Report, THE JOURNAL A. M. A., Feb. 7, 1914, p. 436.

The conclusions to be drawn from the few tests that I have performed are:

1. After dialyzing the urines of pregnant women the dialysate always gives a positive reaction to ninhydrin.

2. After dialyzing the urines of non-pregnant women, the dialysate frequently gives a positive reaction to ninhydrin; occasionally, under the same conditions, the urines of men give positive reactions.

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VOLUNTARY DISPLACEMENT OF THE EYE

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The following unique case was called to my attention about three months ago.

E. J. H., aged 30, a native American, soldier, unmarried, was admitted to the Government Hospital for the Insane April 2, 1909, with dementia praecox. His previous history was unimportant; he had completed grammar- and high-school courses and two years in a university.

The patient entered the army in 1906. During the year 1908 he showed evidence of lack of attention and inability to do his work properly. He became very much depressed and "blue"; was worried about his mental condition, homesick, and anxious to return home. He became careless of his personal habits, was forgetful and unable to perform simple duties. He stated that previously people had called him insane.

Since his admission to the hospital his condition has remained about the same. When admitted his pupils reacted to both light and accommodation. A history note dated Jan. 18, 1913, records the patient's mannerism of holding his hands to the side of his head and, in a characteristic way, with finger-tips pressing the lower lids downward, exclaiming, "Doctor, I am just an old, crazy bum, that's what I am."

About six or seven months ago the patient began to devote attention to his left eye, and, by pushing the index-finger in beside the eyeball, the conjunctiva and muscles were gradually stretched until he was able to force the globe out of the socket. To do this seemed to afford him a certain amount of satisfaction, and that eye became his plaything. It was not many weeks before he was able to extrude the eye as shown in Figures 2 and 3.

I first examined this patient about three months ago. The left eye, in a quiescent state, was slightly more prominent than the right, projecting about 4 mm. beyond the plane of the latter. The pupils were about equal in size and regular in shape. The right pupil responded normally to light and accommodation. The left pupil responded to light consensually but not directly. The cornea of the left eye was perfectly clear, the anterior chamber equal to the right in depth; there was very little conjunctival injection and blepharitis marginalis of the left eye. The left fundus was easy to examine, and showed complete atrophy of the optic nerve, but no signs of active inflammation. There was but little change in the caliber of the retinal vessels, the arteries being slightly smaller than normal and the veins slightly dilated.

When asked to show me what he could do with his eye the patient placed his index-finger on the lower left eyelid and, with slight pressure, forced the eye outward and upward from the socket. The globe was at least an inch beyond its normal plane, as shown in Figure 2. When the finger was removed from below the eye, the globe, by the action of the muscles, was redrawn into the socket. The return of the eye was rapid until about three-quarters of the way back, then more slow, the muscles restoring it to the position shown in Figure 1. By making a sort of hook with his index-finger and placing it above the eye the patient could bring the eye outward and downward along the side of his nose, as seen in Figure 3. The manipulation of the eye seemed to cause the patient not the slightest pain or inconvenience, in fact, he stated that he felt no pain whatever. Fixation was perfect, as can be seen by a glance at Figure 1, both the left and right eyes looking straight into the camera.

Fig. 1.—Left eye in orbit; note its slight prominence and widening of the palpebral fissure. No strabismus; fixation of left eye equal to right.

Fig. 2.—Eyeball forced out of orbit upward. No evidence of pain.

Fig. 3.—Eyeball forced downward well outside of lids.

One of the most difficult features to understand in this case is how the muscles retain their tone, after all the stretching to which they have been subjected. So far no attempt has been made by the patient to displace his right eye.

The Farragut.

A CASE OF INFANTILE UTERUS AND APPENDAGES WITH RESULT OF TREATMENT

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Patient.—Mrs. M., white, aged 27, married five years, has never been pregnant, and is anxious to have a child.

Examination.—General condition good, muscular, not fat; figure like that of a boy of 18; narrow hips, undeveloped breasts. Heart and lungs normal. Uterus about size of English walnut, ovaries not palpable. (Has been examined by gynecologist who told her she could never have a child.) Pelvis normal. Has had menstrual show of a few drops three or four times during her life. Epistaxis very free at times. Sexual feeling very slight, if at all, and only very seldom. Several members of family have had menstrual disorders, but none of this type.

Treatment and Result.—April 6, 1912: Patient was put on extract of luteum tablets, one three times daily for a week,

two three times daily for another week, then returning to the first dosage. Uterine massage was given by forcing organ against and kneading it through abdominal wall, April 6, 12, 19, 27, and May 3 and 10.

May 20, 1912: Menses appeared with fair flow for a day. Patient has taken on quite a little weight and feels well. Massage has been stopped. Extract of luteum is continued.

Patient had sensation of approaching menses in June, but only a pink show. She had mild epistaxis. General condition is good; she seems to be rounding out. Becoming discouraged, patient abandoned treatment.

Extract of luteum treatment was advised and started again in September, 1912. Uterus seems larger and cervix longer than in June. Last part of October patient had slight menstrual show, first since June.

Nov. 3, 1912: Patient noticed more sexual feeling last month.

Pregnancy.—Nov. 25, 1912: No menses since show in October. Patient very much stouter, breasts enlarged, uterus larger, cervix longer. Pregnancy suspected and cautions given.

Jan. 24, 1913: Uterus much larger, size of large pear, cervix long and firm. Breasts much larger; hips larger; general appearance of woman's figure instead of boy's. Side view, prominence above pubes, as in three and a half to four months' pregnancy.

Feb. 1, 1913: Patient thought she felt motion. Breasts quite large, areola darker.

Feb. 9, 1913: Patient felt motion distinctly.

Feb. 14, 1913: Patient noticed fluid in breast. Pregnancy continued normally until May 26, when miscarriage threatened after strenuous day of house-cleaning.

July 2, 1913: Uterine pains started at about 4 a. m.; duration of about fifteen seconds and about half an hour or more apart. At 7:30 a. m., pains were twenty minutes apart, rather regular, lasting one-half minute, os slightly open. Patient was sent to George Washington University Hospital at about 9 a. m. Pains were ten minutes apart, harder, and lasting about three-quarters to one minute. Expulsion pains, very strong, lasting from one to two minutes, began about 3:30 p. m. At 6 p. m. patient was delivered normally of a boy weighing 6 pounds, 2 ounces. There was no tear of cervix or perineum. Placenta delivered ten minutes later normally. Mother and baby made an uneventful and perfect recovery and left the hospital in two weeks.

Nov. 5, 1913: Baby well, strong and good, weighs 14 pounds. Mother's condition excellent; has retained her weight and has nursed the baby from birth.

The Farragut.

EASILY PREPARED DILUTING FLUID FOR COUNTING RED CELLS

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Text-books on clinical diagnosis usually give two diluting fluids for making the erythrocyte count in blood-work. These are Toisson's and Hayem's solutions. Toisson's fluid is difficult to prepare, as weighing the stipulated 25 mg. of methyl violet requires great care to secure the necessary accuracy, and more delicate scales than the average laboratory possesses. Then it is not always permanent, as molds may grow in it, forming precipitates. Hayem's solution has no added coloring-matter, and so the cells are not brought into clear relief. With this fluid it is also difficult to differentiate the white and red cells. I have for some time been using a diluting-fluid that is easily prepared, keeps permanently, and has all the advantages of either Toisson's or Hayem's solutions. The formula follows:

Loeffler's alkaline methylene blue	1.	c.c.
Liquor formaldehydi	1.	c.c.
Glycerin	10.	c.c.
Ammonium oxalate (neutral)	1.	gm.
Sodium chlorid	2.5	gm.
Distilled water	90.	c.c.

The various ingredients are added to the distilled water and allowed to stand until solution occurs. After being filtered, the preparation is ready to use. This gives a diluting-fluid of specific gravity about 1.045—sufficiently heavy to prevent a too rapid sedimentation of the red cells. If for any reason a diluting fluid of less specific gravity is desired, the glycerin and sodium chlorid may be reduced proportionally until the desired density is obtained. The preparation is permanent, easily prepared, and brings out the red cells in sharp relief, making the count easy. The red and white cells are also well differentiated.

128 East Fifty-Seventh Strect.

A CASE OF DORSAL DISLOCATION OF PROXIMAL PHALANX OF GREAT TOE

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C. T., aged 14, from Tower Hill, Ill., came into my service with a painful and swollen foot due to a horse falling on it.

Fig. 1.—Dorsal dislocation of proximal phalanx of great toe.

Fig. 2.—Same case after reduction.

Examination showed marked deformity of the right foot, and suspected fracture with dislocation. A roentgenogram by Dr. Fred O'Hara disclosed a dorsal dislocation of the proximal phalanx of the great toe, with a plantar displacement of the metatarsal, and a fracture of the distal end of the second metatarsal bone. Though Malgaigne calls attention to the fact that four out of ten cases of this type are irreducible, reduction under general anesthesia was readily accomplished and the end-results are perfect.

Skillern[1] refers to the rarity of the condition in his report of a case, and I am desirous of adding my case to those already reported, which now total twenty.

1. Skillern, P. G.: A Case of Dislocation of Proximal Phalanx of Great Toe, THE JOURNAL A. M. A., Dec. 6, 1913, p. 2063.

New Instruments and Suggestions

A STERILE ELECTRIC ENGINE FOR BONE-CUTTING

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High-speed, rotating bone-cutting instruments such as circular saws, drills, reamers, etc., have not been universally taken advantage of in bone surgery because of the fact that some sterile means of driving these instruments must be provided. The flexible cable-driving shaft, of the type formerly used by dentists, is not entirely practicable because it is prone to "freeze" or break; there is little freedom of motion because the motor must be kept away from the operative field; and also since it has but little weight, the saw will often override and slip unless considerable pressure is used.

Surgical and electric instrument makers have attempted to produce a practical sterilizable electric motor for the purpose of directly attaching the cutting instruments to it; but even these costly enamel wire motors are unreliable, and are apt to develop short circuits and other ills after boiling. Being acquainted with the small, light electric hand-drills used in the steel and iron building-trades, I have adopted for use in bone surgery, at a very small cost over the original price of the drill, one form known as the Duntley Universal Electrical Drill, No. 000 (Fig. 1).

This drill is fitted with a removable universal chuck which will firmly grasp and automatically center all manner of cutting instruments of any size up to ¾ inch in diameter at the shank. (The motor is of the universal type and can be run on either direct or alternating current at 110 volts).

Fig. 1.—Duntley universal electric drill.

Few changes are needed in this drill as it is found in the machinist's trade. The chuck should have its knurled collar ground smooth, and together with its bevel gear key should be nickel-plated. The electric cable should be cut in two and the drill end fitted with the female half of a "separable" electric connection. The other half of the cable should be fitted with the male part of this connection. Another male half of a similar separable connection should be fitted, instead of wires, with a hook to which a sterilized lead plumb bob is to be attached, so as to allow the electric cable to slip readily through the long canvas tube.

Two canvas bags are provided; a long tube, 4 inches in diameter with four tapes at its upper end, and a square bag just fitting over the body of the motor, provided with four tapes at the open corners and a tape on either side of the copper grommet-hole. The latter is made at the upper end of the front of the bag so that the tapered shaft which is to carry the chuck can protrude. These bags are made out of the very finest quality of 8-ounce United States Army canvas, and the copper grommet is just large enough to fit accurately at the collar of the tapered shaft. These grommets are used by all awning, tent or sail makers, who can easily make such bags at a very small cost.

My method of using this electric apparatus is as follows: The chuck, key and lead plumb bob are boiled with the instruments, and the canvas bags sterilized with the dressings. Previous to the operation, the tapered shaft is cleaned and sterilized by running the motor and polishing it with a gauze sponge wet with phenol (carbolic acid) solution; it is further sterilized with a sponge wet with alcohol, and then covered with sterile gauze. (The alcohol will not injure the ball bearings of the shaft). After the usual preparations, the nurse opens the dressings and hands the operator the long tube which he and an assistant hold open with the tapes. A fourth person fits the sterile plumb bob to the hook of the male half of the separable connector and this half to the female connector on the cable leading from the drill. He then lets the weighted cable down through the tube, firmly holding the drill horizontally with one hand while he manipulates the cable with the other. After the handle is covered up to the make-and-break switch, the bag is firmly tied to the handle. The operator now seizes the tube firmly at the handle and inverts the drill and slips it into the open end of the larger bag, which is held by the nurse and assistant by means of the four tapes. These are then tied about the tube, and the tapered shaft slipped through the grommet and at

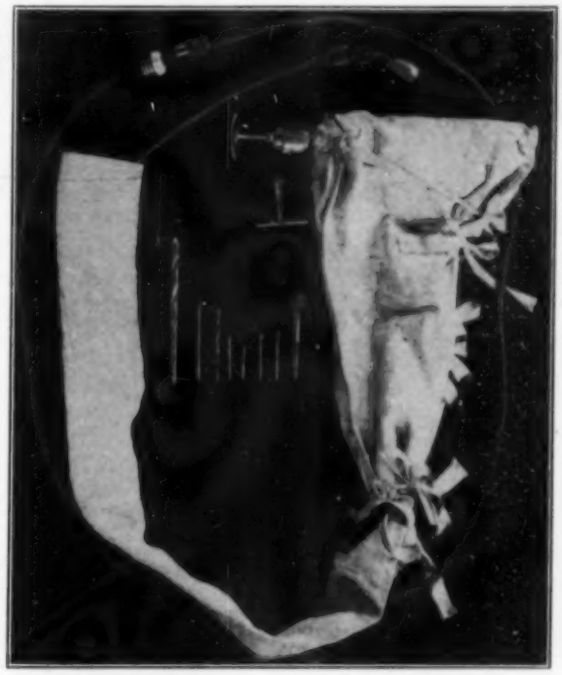


Fig. 2.—Electric engine encased in the canvas bag. Chuck in place holding rotary "buzz-saw." Some of the burrs and reamers used with the engine.

once capped with the chuck. The upper tapes are tied and the chuck firmly seated on the shaft by a blow from the mallet, and the key is inserted into its hole in the chuck. Any desirable instrument (in the illustration, a circular saw) can be firmly grasped and locked in the chuck by a few turns of the key. The fourth person now removes the half of the separable connector carrying the plumb bob and slips on the joint carrying the other part of the cable, which has previously been connected to some electrical socket. Electric cords of any length can be used.

In this way there is absolutely no unsterilized surface near the field of operation. I have used my apparatus sixteen

Fig. 3.—Cut made with circular saw. (Print slightly retouched.)

times without any infection resulting, making a fairly conclusive test as to sterility. The whole operation of loading the bags ought not to take more than five minutes.

Any shape of rotating cutting-tool can be used. For drilling holes, ordinary slow-speed twist drills, which can be purchased in all sizes from 1/64 inch in diameter and upward, are preferable. Wood reamers of all sizes can be fitted, and all sorts and sizes of dental and vulcanite burrs, drills, reamers, etc., can be used as easily in bone as in dental surgery. Circular saws of all sizes, single or double, can be used. The

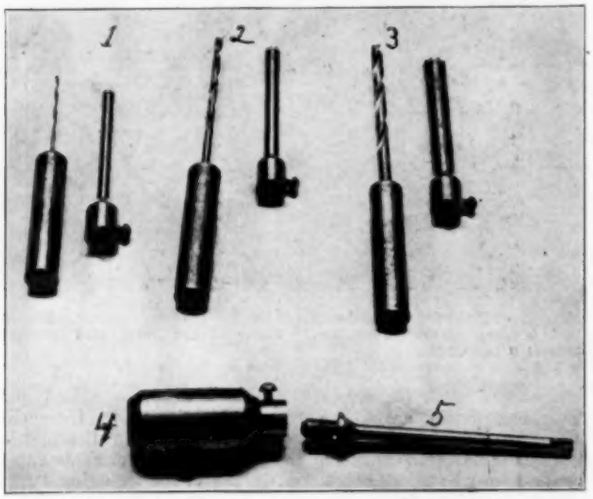
best size is about 1¼ inches in diameter and as thick as a good quality visiting-card. Such a saw can be furnished by any good saw sharpener at a very small cost. It is not necessary to nickel-plate these instruments if they are properly dried after operations. Dull instruments may be resharpened by being immersed in dilute nitric acid until the edges are restored. With such a machine it is very easy to sever bones with a straight or curved cut, cut out all manners of grafts or slots in bone cleanly and quickly, clean out hard, eburnated osteomyelitis cavities, ream out marrow cavities, cut through ankylosed joints, freshen up ends of old ununited fractures, drill holes for nails and screws, trephine the spine or skull, or cut off exostoses. The cuts are remarkably clean and sharp and there is no splintering or chipping of bone as when a gouge or chisel is used.

821 Schofield Building.

INSTRUMENTS FOR THE MANUFACTURE OF AUTOGENOUS BONE NAILS, PEGS AND GRAFTS

HUGH H. TROUT, M.D., AND R. L. RHODES, M.D., ROANOKE, VA.

In the accompanying illustration 1, 2 and 3 represent twist-drills of three sizes and the corresponding reamers for the manufacture of bone nails; 4 is a chuck to receive the drills, and 5 the spindle which receives not only the chuck but the



Instruments for the manufacture of autogenous bone nails, pegs and grafts: 1, 2 and 3, twist-drills of three sizes and the corresponding reamers for the manufacture of bone nails; 4, chuck to receive drills; 5, spindle which receives chuck and reamer.

reamer as well. These reamers have a slightly wider diameter on the inner side at the base than they have at the cutting end; preventing any binding or twisting of the nail. In obtaining the nails it is advisable to utilize the bones removed from the groove, or at least to make them in the long diameter of the bone if no groove is made. When made in this manner the nail is far stronger than when made transversely.

Of course, these instruments are operated by means of an electric motor and we find one with a friction-driven shaft less apt to bind and more even in action.

We have now employed these nails, both as intramedullary pegs and as a means of holding bone-grafts in position, in a sufficient number of fracture cases to appreciate their great value.

APPARATUS FOR ENDOSCOPIC GALVANO-CAUTERY OPERATIONS ON THE VESICAL ORIFICE

H. MCCLURE YOUNG, A.B., M.D., ST. LOUIS
Assistant Surgeon to Outpatients, Washington University Medical School

This apparatus is intended primarily for operations on the moderately hypertrophied prostate. It consists of a Braasch direct-vision cystoscope for which operating windows with a hole for the introduction of the cauteries have been made for me by the manufacturers. These cauteries I have had made in two forms, the cautery knife and the cautery curet. As the electrode does not readily pass through the hole in the operating window, a separate window has to be provided for each cautery. These cauteries are to be used under water and, therefore, certain special precautions have to be observed in their manufacture. They must be absolutely impervious to water. If the slightest trace of moisture leaks into them it will cause a short circuit. The distal end requires very particular attention. It must be sealed in a manner to render

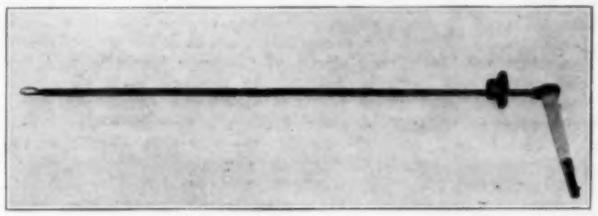


Fig. 1.—The cautery curet.

the instrument absolutely water-proof. An ordinary cement will not do, for it is porous. My electrician encases the inner electrode in fine rubbing tubing. Each cautery must be carefully tested before use.

The surgeon having previously determined that his case is one suited to this technic, will introduce his Braasch cystoscope as for an ordinary cystoscopy. No preliminary washing of the bladder is necessary. Having found offending protuberances on middle or lateral lobes, he will introduce his cautery curet, which, of course, has been carefully tested beforehand and his transformer set at exactly the point necessary to heat it properly. The irrigating fluid is permitted to flow through the cystoscope, and the curet is placed firmly against the tissues which it is desired to remove. The current is now turned on and a ribbon of tissue, corresponding to the size of the curet, is cut out. As this ribbon of tissue ordinarily adheres to the curet, it may be removed, the instrument reinserted and the maneuver repeated. This may be continued indefinitely. Bleeding cannot interfere with the vision for the reason that the irrigation carries all blood and débris back to the bladder, thus providing the surgeon always with a clear field. This cystoscope is also an excellent urethroscope for the posterior urethra, and the surgeon can therefore prolong his operations as far forward into the prostatic urethra as he may elect.

The knife, it will be observed, is straight instead of having the conventional downward curve of many prostatic incisors. I believe that when used through the cystoscope a straight knife is preferable for the reason that the point can be kept constantly in view. It will of course cut through the floor of the prostatic urethra just as well as a curved knife could, for the urethra will tend to resume its natural curve as the cystoscope is withdrawn, and this will bring the prostate firmly up against the knife. Fairly deep incisions can also be made laterally by deflecting slightly the beak of the instrument.

It is believed that this technic has a somewhat wider field of usefulness than any of the various conservative methods of

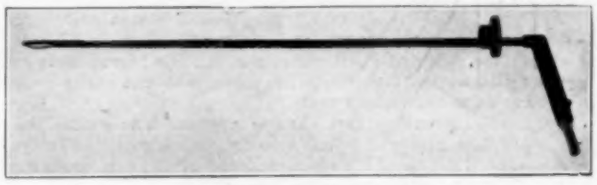


Fig. 2.—The cautery knife.

operating on the prostate hitherto proposed. It has the advantage over the Bottini operation that it can be done under the direct control of the eye. I believe that it is superior to Goldschmidt's procedure also, for the reason that portions of the gland can actually be removed and a more extensive operation performed, and it is much simpler in point of technic. It also would appear to promise somewhat more than the various punch operations, for the reason that the surgeon can incise or excise as he chooses and as deeply as he chooses, can

review his work almost indefinitely until he is entirely satisfied with the situation he has created, and is not annoyed by the hemorrhage. The only technical difficulty connected with the procedure lies in the proper heating of the cauteries under water, a thing which, however, is entirely feasible and has been done many times before. It will require some care in their manufacture and then considerable patience on the part of the surgeon to determine just how much current is necessary to heat them without the danger of fusing them. They must

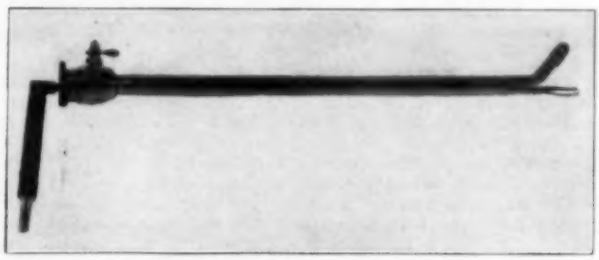


Fig. 3.—Braasch cystoscope with cautery knife in position.

of course never be exposed to the current while in the air or they will fuse instantly. At best the surgeon must expect to burn out a knife occasionally and should therefore always take several of these cauteries with him to every operation. Finally, the pleasure to be derived from raking out an offending projection through the cystoscope under the direct control of the eye, together with the ease and simplicity with which this can be accomplished, will amply repay him for all his trouble.

600 Carleton Building.

SOME NEW CAMERAS FOR LABORATORY USE *

LOUIS B. WILSON, M.D., ROCHESTER, MINN.

I have recently completed two cameras for laboratory use, and in describing them also include two others which have been in use for some time previously.

I. CAMERA FOR USE WITH PROCTOSCOPE

This camera (Fig. 1) consists of a cylindrical barrel (*A*) to the front end of which is attached a rapid, short-focus, photographic lens (*B*) and to the other end of which is attached a simple photographic shutter (*C*) and small metal receiver (*D*) for taking a plate-holder (*E*) which carries an ordinary photographic plate 4.5 by 6 cm. in diameter.

In use, when a desirable field is found through the direct-vision proctoscope (*F*), the camera is inserted with the shutter closed and set for time exposure and the dark slide of the plate-holder drawn. The patient's buttocks are steadied, the shutter snapped and an exposure of from 2 to 5 seconds given. The shutter is then closed and the camera withdrawn from the proctoscope. The operation should require not more than twenty seconds, and interferes but slightly with the ordinary course of a proctoscopic examination. The resulting pictures

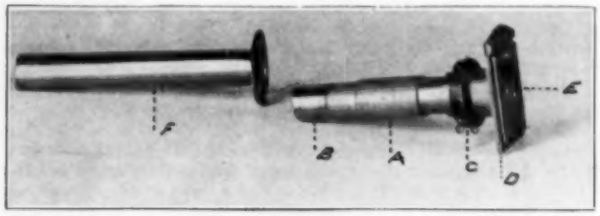


Fig. 1.—Camera for use with proctoscope; *A*, tube; *B*, lens; *C*, shutter; *D*, receiver; *E*, plate-holder; *F*, proctoscope.

are circular and 1⅛ inch in diameter. The chief difficulty encountered is in maintaining the patient in a fixed position for the few seconds necessary to make an exposure.

II. MINIATURE CAMERA FOR PHOTOMICROGRAPHY

Laboratory workers have for a long time experienced great inconvenience in having to carry a microscopic slide from the microscope which they ordinarily use to one set up and adjusted for photography. A number of cameras have been devised to obviate this difficulty. With but two exceptions, these have all required the use of a large heavy plate on which the microscope rests at all times or to which it must be transferred after the desired field is found. Of the two exceptions, one is a camera which fits directly on the draw-tube of the microscope, weighs 685 gm. (23 ounces) and uses a plate of a size difficult to obtain in America. The other is a camera which has a very heavy base, and while the whole apparatus may be moved up to the microscope, yet has no means of rapidly centering the two. The miniature camera here described and the larger portable camera to be described next both get rid of the inconvenience of the heavy sole-plate, and yet work with simplicity, speed and accuracy.

The miniature camera (Fig. 2) consists of a pyramidal aluminum box (*A*) bearing at one end a shutter (*B*) with a light-tight connecting sleeve (*C*) and at the other end a receiver (*D*) which takes a plate-holder (*E*) carrying a plate of the ordinary block-note size, 4.5 by 6 cm. The whole apparatus is 9 inches long and weighs, complete as it goes on the microscope, only a trifle over 7 ounces. In use, when a desirable field has been found in the microscope, the camera is slipped on the microscope, to which it fits securely by

Fig. 2.—Miniature camera for photomicrography; *A*, box; *B*, shutter; *C*, light-tight sleeve; *D*, receiver; *E*, plate-holder.

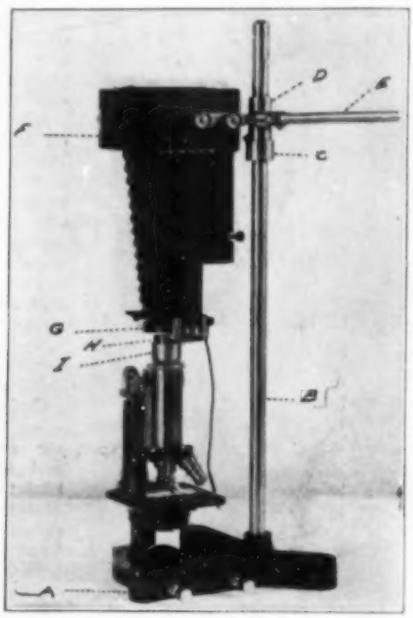


Fig. 3.—Portable stand and camera for photomicrography; *A*, base; *B*, support; *C*, collar; *D*, reducing clamp; *E*, arm; *F*, camera; *G*, shutter; *H*, and *I*, sleeve.

means of a sleeve that remains permanently on the draw-tube. The camera is placed in position with the dark slide drawn and the shutter set for a time exposure and closed. The focus is then adjusted an amount previously determined by the fine adjustment screw, the shutter opened and the exposure made. The shutter is then closed and the camera removed from the microscope. The whole operation may be done without in the least jarring the microscope. Aside from the time of the exposure, which of course varies with the kind of light used and the magnification, the entire process requires less than a minute. This little camera gives excellent results, though its field of usefulness is, of course, limited by the small size of the plate and by the short range of magnification resulting from its short, fixed extension.

III. MEDIUM-SIZED PORTABLE STAND AND CAMERA FOR PHOTOMICROGRAPHY

This stand and camera (Fig. 3) have been devised to get rid of the inconvenience of the sole-plate or other special stand to which the microscope has hitherto been attached when used for photomicrography. The new features in it are: (1) a tripod base (*A*) which can be adjusted accurately by

* From the Mayo Clinic.

set-screws to any microscope with the ordinary horse-shoe base so that the instrument, while not attached in any manner to the microscope, can be brought instantly into accurate alignment with it; (2) a supporting rod (*B*) carrying a collar (*C*) and clamp (*D*), the latter of which is specially constructed for holding a round horizontal arm (*E*) in a manner that will permit its being turned at any angle and yet held with great firmness without turning; and (3) the camera (*F*) carried by the horizontal arm, by means of which it may be adjusted to any position from vertical to horizontal or tipped at any desired angle.

The camera itself takes the ordinary plate-holder for 3¼ by 4¼ plates, but is heavily reinforced in its working parts and has an unusually long bellows. A shutter (*G*) and light-tight sleeve (*H*) are attached to the front board. In use, the microscope to which the camera has been previously adjusted and to which is permanently affixed only a small inconspicuous part (*I*) of the light-tight sleeve may be used anywhere on a fairly level table. When a desirable field is found, the entire stand and camera are moved into position so that the studs and set-screws are in contact with the base of the microscope, when it will be found that the two instruments are in exact alignment. The readjustment of the focus may be made ordinarily with low powers by the fine adjustment screw, or, if necessary, with high powers, by refocusing on the ground glass. The subsequent steps of taking the photograph are those ordinarily employed.

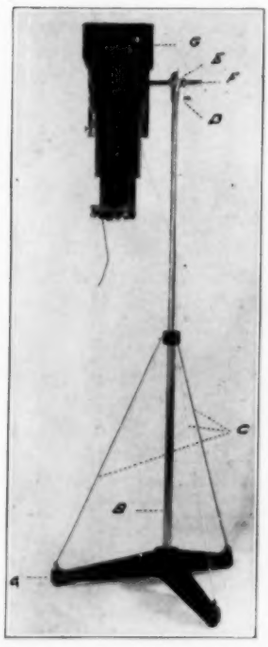


Fig. 4.—Large stand and camera for specimen and general laboratory photography; *A*, base; *B*, support rod; *C*, guy rods; *D*, collar; *E*, right-angle clamp; *F*, arm; *G*, camera.

The camera may be rotated on the support-rod at will and brought again into exact alignment by means of two stop-studs—one on the collar and one on the clamp—which engage with each other. It may be used with the microscope in the horizontal position or inclined at any angle, though the instantaneous alignment is obtained only when the instrument is in the vertical position.

Photographic lenses may be added to the shutter and the camera very conveniently used for photography of specimens and apparatus, or for making portraits, etc., while it is still attached to the stand. Or the camera may be detached entirely from the stand and then forms a high-class folding pocket camera suitable for plates or film-pack. For use with extra long-focus lenses, I have had this camera built with a 16-inch extension which is obtained by means of a supplementary bed.

IV. LARGE STAND AND CAMERA FOR PORTRAITS, GROSS SPECIMENS AND GENERAL LABORATORY WORK

Six years ago Andrews and I built and described (*Jour. Med. Research*, 1908, xvii, 487) a large stand and camera for photographing pathologic specimens submerged. This apparatus has proved to be thoroughly satisfactory in our hands, but there is a demand for a more portable and withal a less expensive machine to serve the same purpose. I have therefore devised the stand and camera shown in Figure 4. This apparatus which is well adapted for taking portraits of patients, photographs of gross specimens or operations and for general photographic laboratory work, consists of a heavy tripod base (*A*) into which is screwed a heavy support-rod (*B*) 5 feet high, which is reinforced and made more rigid by three small guy-rods (*C*) running from a collar near its middle point to the ends of the feet of the tripod. On the support-rod are carried a collar (*D*) and right-angle clamp (*E*) which is specially bored to hold securely at any angle a round arm (*F*) with a forked end to which is attached an ordinary long-extension 5 by 7 folding box camera (*G*). The camera may be used in the vertical position, as when photographing specimens under water, horizontally as for portrait work, or inclined at any angle as in taking photographs of operations, apparatus, etc. Hardened steel domes are inserted at the bearing points of the tripod in lieu of the usually unsteady casters. The whole apparatus is portable, light, simple in construction and extremely rigid, while its cost is very low.

A MEANS OF FACILITATING THE APPLICATION OF LEG-DRESSINGS

JOHN STAIGE DAVIS, M.D., BALTIMORE
Instructor in Surgery, Johns Hopkins University Medical Department

An uncomfortable or awkward position hinders efficient work in any occupation, including surgical manipulations. In the outpatient department of every large surgical service many leg cases are dressed. Such dressings are often avoided, partly because of the physical discomfort necessary in applying these dressings under ordinary conditions.

The heel-rest usually supplied for this work is slightly higher than the seat of an ordinary chair, and unless the dresser sits down to apply the bandage, he is compelled to bend over and assume a very tiring position, which is a matter of considerable moment where there are a number of these dressings.

The high chair and heel-rest compared with those ordinarily used.

In a busy clinic it is obviously impracticable for each dresser to have a seat for this purpose, and consequently a considerable amount of energy is unnecessarily expended. In order to avoid this useless fatigue and to accelerate the work, it occurred to me that higher chairs and correspondingly higher heel-rests might be of advantage. A number of these chairs with seats 28 inches above the floor, and heel-rests 32 inches high, were tried in one of the rooms of the outpatient department, and their use has greatly facilitated the application of leg-dressings.

Dressings on other parts of the body are also made easier by the use of these chairs, thus sparing the surgeon unnecessary discomfort. Should it be desirable to have the leg elevated before applying the dressing, the high heel-rest may be used while the patient sits on a chair of ordinary height.

These simple and inexpensive modifications in the equipment of a surgical dressing-room seemed worth while reporting, as I have found them most satisfactory.

Women in Medicine.—We are prone in the modern time to think that our generation is the first to offer to women any facilities or opportunities for education in medicine. We are prone, however, just in the same way, to consider that a number of things that we are doing are now being done for the first time. As a matter of fact, it is extremely difficult to find any important movement or occupation that is not merely a repetition of a previous interest of mankind.—Walsh: Makers of Medicine.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Continued from page 1017)

TREATMENT

In the first place, it should be most seriously urged that, although there is no specific treatment for the cure of tuberculosis, and although the important part of the treatment consists in rest, fresh air and proper nourishment, it is a serious mistake to believe that a patient, even though for a period carefully advised, can do without constant medical supervision. This disease does not tend to recovery, but can be managed or engineered to recovery. The elements of successful treatment of pulmonary tuberculosis are hygiene (climate, sanatorium or home), fresh air, rest and food.

A few general axioms should be considered:

1. A change of climate alone, or any one climate, will not cure a patient. Therefore, there is no Mecca to which every patient, or even very many patients, should be sent on account of climate. Of course a dry climate, either warm or cold, is better than one which is moist or variable and changeable.

In seeking a location for the tuberculous patient, his comfort must not be forgotten. Even if other things are unequal, he must be comfortable and content, and where he can have the best possible food and will worry the least. Consequently, to combine the elements necessary for success, a large number of patients must be treated at home. A patient who is mentally weak, has no stability and lacks all mental force can be treated satisfactorily only at a sanatorium.

The tubercle bacillus seems to thrive best in cold, damp climates, and next best in hot, damp climates. It thrives less well, and bronchitis is less, in dry, hot climates, but it thrives least well, and bronchitis and catarrh of the upper air-passages are least prevalent, in dry, cold climates. It is generally understood that winds make a bad climate worse, and perhaps a good climate better. Therefore, for patients who are not seriously ill, a sea voyage, if possible, is often excellent. A climate, changing rapidly from 20 to 40 or even 50 degrees in twenty-four hours, with fogs or with the damp atmosphere that occurs in places located on rivers, lakes, sounds or inner bays (that is, not actually subjected to the ocean breeze) is as bad as possible for tuberculous patients. In spite of these serious climatic disadvantages, however, many patients under proper treatment recover in these locations.

The value of a high altitude has been overestimated. One great advantage of altitude is that sanatoriums so located are ordinarily removed from the dust and dirt of cities; in other words, the air is pure, and they also have more sunlight and more clean, dry winds. Therefore, sanatoriums, even in the lowlands, placed at a sufficient distance from large cities and at such a height as to be entirely free from the atmospheric conditions surrounding such cities, and not to be subjected to the moist atmosphere of the surrounding plains, are able to offer most of the advantages of the more distant and perhaps ideally located sanatoriums. The height above sea-level is not so important for such sanatoriums as the height above the surrounding country; a location five hundred feet or more above its immediate environment is entirely satisfactory.

A patient at high altitudes, where the atmospheric pressure is reduced, breathes more rapidly for a period in order to oxygenate the blood normally, until he becomes used to the altitude. It has also been shown that he will acquire, for a time, more red blood-corpuscles until he becomes, so to speak, acclimated, and he then can perhaps walk without extra exertion or dyspnea, provided that the altitude is not too great and that he has no circulatory lesion and is not having hemorrhages. A patient with hemorrhages and a heart-lesion should not be sent to high altitudes.

There are so many authorities who may be consulted on climate and tuberculosis sanatoriums, that it is not proposed here to advise the place to which a tuberculous patient should be sent. It may simply be suggested that if a patient has the means to travel and is otherwise fitted for a distant sanatorium treatment, the Denver region represents the high and dry, and the Adirondacks a less high and colder climate; New Mexico and Arizona are dry, and often pleasanter; Southern California is pleasant, warm and more moist, and Florida has a warm, moist, rather undesirable climate. In the fall and spring, the Carolinas possess a pleasant, satisfactory climate, as also do many of the southern islands, as the Bermudas, at most seasons of the year. But it cannot be too many times repeated that a patient cured in the region in which he is to return to work stands that work better than if he is cured in another climate. He seems less likely to have recurrences. Also, the statistics of improvement seem to be very satisfactory for sanatoriums properly situated in most of our states, and not far from most of our large cities; hence it is not necessary to send a patient a great distance to be cured.

The value of the pine regions has also, perhaps, been overestimated. It seems to be a fact, however, that inhalation of the aromatic vapors from pine woods tends to cause the mucous membrane of the upper air-passages to be more healthy, and to dry up catarrhs of these passages. The satisfactory action of pine vapors has caused many inhalant mixtures containing them to be prepared.

A patient financially able may take the cure in the Adirondacks in the summer and in Southern California or South Carolina in the winter, and may thus avoid the hardship of a severe winter climate. To whatever sanatorium or region a patient is sent, careful decision should be made within two or three months as to whether or not this particular climate is causing improvement. Some patients do not do well in one climate, but immediately improve in another. As to climate and surroundings and the success of treatment, each patient must be individualized carefully.

The greatest handicap to the ultimate permanent success of sanatorium treatment is that it is difficult to make the patient and his relatives understand that although he looks well, eats well, has gained weight and coughs but little, he should remain longer at the sanatorium for treatment. Like the Christian Scientist, what he does not see, he does not worry about. It therefore means that each patient, and the patient's relatives, should put implicit trust in the decision of the patient's physician as to when he should begin to exercise, when he should stop active treatment, and when he should return to work. If the physician's advice were always followed in this respect, the relapses or the relighting of arrested pulmonary tuberculosis would be reduced at least half.

Other things being equal, as to whether or not a patient should be sent to a distance, we may make a

rough working rule that a patient with incipient tuberculosis having but one apex involved, or a patient with a slowly healing pleurisy or a pneumonia that does not properly clear up, should be sent away. If both apices are affected, it is hardly justifiable to send the patient to any distance, especially at a pecuniary sacrifice. If much softening and cavities exist, or if there is disseminated tuberculous infiltration, a change of climate can often give but slight relief. Great care should be exercised not to send an advanced patient away, or on a journey that he cannot well stand. A patient without means, or without sufficient financial help to remain at a sanatorium for at least three months, should certainly not be sent to a distance.

2. The second essential is fresh air. The fresh-air treatment does not mean that the patient should be frozen to death in winter. It does not mean that he should be snowed on or rained on, or that he should lie out on a veranda in a fog. This is senseless, useless and often a cause of serious consequences, such as increased catarrh of the upper air-passages, hypertrophy of the mucous membrane of the nose, middle-ear catarrh, pneumonic congestions, congestion of the kidneys, and intestinal indigestion. Although many patients go through such hardships and attain recovery, a great many fall by the wayside. Such foolish exposure of young babies to cold as occurs to-day is a potent cause of the increase in postnasal adenoids.

3. The third essential is rest. When there are hemorrhages or continued fever, of course there is no question of the necessity of rest and quiet. When fever is not present in the morning, but rises in the afternoon and evening, it is certainly better to have the patient absolutely at rest. When the fever ceases, but the patient is not improving or gaining weight and has poor appetite, or when there is any bowel disturbance, the patient should still continue at rest. If the attending physician is in doubt as to whether or not a patient should exercise, it is best to err on the side of rest. Rest means more than simply lying down; the patient must be comfortable. Therefore the proper wraps for the season, the proper chair, couch or bed in such a location as to insure sun, air and the least possible wind, are all essentials for the rest-cure.

Just when exercise should be begun is hard to decide, and should be decided only by testing the patient. Exercise may be given, whether in walking, calisthenics or in the doing of a little work (and all must be graded) to see what the effect on the patient is; a bad effect is shown by an increased temperature, a rapid heart, loss of appetite, an increased cough and expectoration, or by a hemorrhage. Any of these occurrences would show that the rest period should be continued, except possibly when only an increased rapidity of the pulse results. A patient who shows no disadvantage from exercise, except an increased heart-action, should take graduated walks to strengthen the heart. In other words, a long-rested heart must be trained gradually to acquire sufficient strength to allow the patient to work.

The first exercise a patient should take is a sponge bath in the morning, first with tepid water, later with cool water, and finally often with cold water, to be followed by a brisk rubbing with a towel until the skin is aglow. The warmer the skin is and the better the circulation in the skin, the less likely is the patient to become chilled or take cold.

The next exercise should be ordinary walking, graduated according to the strength of the patient and the results obtained, to educate the patient to endurance. Next comes calisthenics or games that require more or less exertion, and finally some light labor. Driving or automobile riding may be advantageous, if facilities are offered and the patient is improved by such pleasures. Breathing exercises or lung gymnastics are doubtful propositions. The tuberculous lesion heals by contraction, not by expansion. Persons who have no active tuberculosis, who are insufficiently aerating their lungs, are becoming hollow-chested and breathing more or less abdominally only, should take deep breathing exercises; but a patient undergoing a cure for tuberculosis of the lungs should not. A patient receiving tuberculin treatment should also be at rest; that is, he should not take exercise on the days of the injections.

It is almost always of advantage to arrange a patient's daily routine if he is out of bed. He should have his meals and intermediate nutriment at regular intervals; he should have such rest times and such exercise times as prescribed, and he should retire at the hour ordered. It is also well to know absolutely what his exercise is, what his play consists of and how absolute is his rest. In no other way can it be determined where the mistake occurs in a non-successful treatment.

Some sanatoriums, notably one near San Francisco, are endeavoring to offer some simple, self-sustaining work so that patients may pay for their treatment at the same time that they take the cure. Such facilities allow an impecunious and partially healed patient to remain long enough at a sanatorium to perfect his cure.

4. The fourth essential element is food. As already intimated, an increase in weight does not always make the prognosis good, although fortunately it generally is a good indicator of the success of treatment. Some patients may even retain liquids and have slight edemas, from poor circulation, and their weight may increase from this cause. Also, a patient may gain weight from the rest, good food and fresh air, and yet the lung disintegration may continue. Patients who are nervously irritable and restless, especially children, may not gain weight, though eating well. This type is hard to manage in promoting the cure of tuberculosis.

Hyperalimentation, forcing of large quantities of food into the patient, is a mistake in the treatment of tuberculosis. The enormous number of eggs once recommended, the large quantities of milk and the consequent loading of the system with liquid, are also mistakes. The diet should be properly adjusted to the needs of the patient, to his ability to digest properly and assimilate the food offered, and should represent all the elements that good nutrition requires. This means that the patient should receive goodly amounts of carbohydrates, fat, sufficient but not too much protein, fruit, sugars, salts and water. The actual measurement of the amount of protein and the number of calories he receives is likely to be more irritating to the patient than of value in his treatment. A patient who eats sufficiently at his three regular meals need not have very much extra nutrition. A glass of milk, a cup of chocolate or an egg-nog, without alcohol, in the middle of the morning, in the middle of the afternoon, and at bedtime is generally good treatment. Whether or not the patient should drink milk with his meals depends on his digestion. It should be remembered that milk makes a meal by itself, and if a patient eats largely and drinks milk at his meals as he would water his digestive system will be overworked. Meat once a day is generally sufficient. The advantages, in the treatment of tuberculosis, of raw

chopped beef or chopped-beef patties, very slightly broiled, or of expressed beef-juice and blood have been overlauded. Such treatment may be of advantage to some patients, but as a routine treatment is not good.

If for any reason a patient does not take meat, and does not have such a vegetable as greens frequently, and especially if he is anemic, he should receive iron once or twice a day, best in the form of the *Eisenzucker* (saccharated oxid of iron), in a 3-grain tablet. This iron should not be considered as a drug or as a medicament; it is simply part of the food. Goodly quantities of digestible cereals are positively essential to the welfare of the patient. The gummy cereals, such as oatmeal, should be taken well broken up as a soup or gruel, and should never be swallowed in gelatinous masses. The more granular cereals that are chewed to insalivate them properly are all more or less of value. The vegetables should be varied. Some fruit is essential, both for the laxative qualities and for the salts they contain. The value of uncooked egg-albumin has been overestimated; it is probably a very poor food, not well digested in the stomach, and often causes increased peristalsis and diarrhea. Raw eggs, including the yolk, or the yolks alone, form good food; but a raw egg is of no more advantage than one poached or soft boiled. The lecithin presented by the yolk of egg has all the advantages of any artificial preparation that contains lecithin; lecithin very probably is a slight nervous stimulant, and may be an aid in promoting nutrition.

Whether or not tea and coffee should be allowed must be determined for the individual patient. Generally he is better off without them. If he does not sleep well he should not receive them with the evening meal. Perhaps coffee with breakfast may be allowed. It should be remembered that tea and coffee represent the drug caffein, and a good strong cup of coffee contains between 2 and 3 grains of it. The action of caffein is that of a cerebral and nervous stimulant; it raises the blood-pressure and acts as a diuretic. If such activities are desired, coffee may be good treatment.

Once more, in our opinion, it should be stated that cereals, vegetables and fruit are of more advantage than large quantities of milk and many eggs. The patient should be encouraged to eat plenty of butter, and cream when he can obtain it, on cereals or other foods. If a patient cannot take, or for any reason cannot obtain plenty of cream, olive-oil in teaspoonful doses or on salads is advisable. Also, in some instances, it may be well to give the patient, after meals, cod-liver oil, best pure and in small doses. The advantage of cod-liver oil in tuberculosis has, of course, long been overestimated, but it is readily digested. If they do not cause indigestion, many of the oily nuts, such as peanuts, have their advantage as nutritives.

GENERAL CONSIDERATIONS

While infection from tubercle bacilli will cause an afternoon rise in temperature and many of the symptoms typical of tuberculosis, the high temperature in the afternoon and evening and the sweating at night are often really due to a streptococcus secondary infection, and such a temperature plotted on a chart is often termed "the streptococcic curve"; that is, typical hectic fever is really due to secondary infection. Therefore, the less the purulent bronchitis, and the general catarrh of the air-passages, the less will be the fever. Any treatment, therefore, whether inhalations or internal medication, which, when added to the proper treatment of the tuberculosis, will tend to diminish this bronchial catarrh, will also lower the temperature and cause less sweating and less loss of weight.

A patient should be cautioned against swallowing his sputum, as many an intestinal catarrh is due to such carelessness. That the tubercle bacillus can pass through the stomach and be absorbed from the intestine has already been stated. That streptococci and other pathogenic germs thus swallowed may cause diarrhea is also a fact.

If there is intestinal disturbance, it may be wise to give some drug as a bowel antiseptic.

Before eating a meal or taking nourishment, a patient not only should wash his hands and lips, but also should use some antiseptic mouth-wash such as a warm boric acid and menthol solution (as a 1 per cent. boric acid solution in ordinary peppermint water); or he may use a 1 : 5 dilution of alcohol in water.

It is often of advantage to give a high colon wash with physiologic saline solution perhaps once or twice a week. This can never do harm, and may do a great deal of good, whether the patient has a diarrhea or is constipated. An occasional dose of castor oil, or other laxative if preferred, is of advantage, even if the patient is not constipated, as it tends to clean out the intestines, and causes the mucous membrane if healthy to remain so.

Proper bathing is essential to keep the skin in good condition; whether this shall be only the morning sponging, or tub-baths, and whether or not with massage, should always be according to the orders of the physician. When the patient has a dry skin, inunctions of oil or cacao butter (oil of theobroma) are valuable, both for removing loosened epidermal scales and to stimulate the lower layers of the skin to a more healthful activity. The same manipulations will also promote the circulation in the skin and muscles.

An insufficient amount of urine passed means that the patient must drink more milk or more water, or perhaps receive some diuretic, such as caffein.

It should be a working rule that all narcotic drugs and depressants should be avoided, if possible. A patient should be taught to sleep without a hypnotic, unless it is deemed temporarily wise that he should be made to sleep artificially. Such treatment should be regretted, and should be only temporary. Occasionally a cough is so irritant and continuous that a sedative is needed, and codein is the best of the opiates. Such depressants as acetanilid or the bromids should be avoided, unless there is a specific indication for them. Nutrition will never improve while such drugs are being administered. Alcoholic stimulation is rarely required, and is generally harmful. Strychnin is generally inadvisable, as it rarely actually stimulates anything but the nervous system. It is an overused drug. Occasional doses of a camphor preparation, or of aromatic spirit of ammonia may be advisable, and are harmless.

Whether or not a male patient should smoke, if he has been addicted to the habit, is a question to be considered. If the patient is otherwise doing well, and he obtains considerable comfort by smoking once, or at most twice a day, after meals, it may perhaps be allowed. Occasionally a man who has been used to considerable amounts of tobacco daily, and becomes tuberculous, may have considerable circulatory weakness if tobacco is taken away from him. Such patients will have their circulation and blood-pressure improved if they are allowed a graded amount of smoking.

(To be continued)

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ATHLETIC SPORTS VERSUS COMPETITIVE ATHLETICS

Certain aspects of physical exercise need to be defended from the discredit into which they are likely to be thrown by the abuses of modern athletics.[1] So long as it is maintained that the latter necessarily involve the idea of a contest — and this point of view has its advocates — we are constrained to emphasize the fact that the dangers of athletic sports are primarily and almost entirely confined to their competitive aspects. It is not the exercise *per se*, but rather the undue exertion involved in the attempt to win or surpass that brings on the symptoms of overdoing, the defective functioning of heart and kidneys. We take no narrow or perverted view of the best intent of physical training. The fundamental definition of an athlete is one trained or fit to contend in exercises requiring great agility or strength. This does not call for a supreme effort.

If the element of competition could be eliminated from our athletic games, if the desire to win could be superseded by the joy of play and a pride in grace of movement and skill in performance, a great step in advance would have been taken. Precisely in these features do gymnastics surpass the athletic contests that call for the extreme efforts of most highly trained persons. The element of physiologic danger is almost entirely wanting in the usual routine of gymnastic exercises. They suffer by comparison with the other types of bodily exercise included in so-called athletic sports so far as the latter involve work outdoors and under conditions which represent the ideal of hygienic surroundings.

The American public is becoming converted to the need of bodily exercise for great groups of the population, young and old. Presumably this is, in general, a commendable sign. If the competitive feature could be eliminated and athletics were conducted for the sake of sport itself, the foremost dangers that now lurk in the struggle to win would vanish completely. It is doubtless too late to reform those who have been saturated with the current notions that athletics are synonymous with a fight for supremacy. In our schools, however, the element of contest involving a mere matching of strength ought to be fundamentally eradicated. The play of children represents the truest ideal of athletic sport. Graceful execution of movement and mild rivalry for perfection can be associated with forms of athletics of increasing difficulty in performance. To develop a graded sequence from the easiest games of early youth to the vigorous complex feats of middle life is a scheme well worth consideration on the part of those to whose care the physiology of exercise is entrusted. A successful plan of regulated physical exercise might serve to retain some of the personal zest for outdoor sports which is now too frequently lost in the misplaced enthusiasm for the dangerous athletic extravagances of a selected few.

1. See Athletic Sports in Relation to Health, editorial, The Journal A. M. A., March 21, 1914, p. 936.

CHEMICAL SUBSTANCES AND PHAGOCYTOSIS

There are three essential factors concerned in bacterial phagocytosis on which chemical substances may act so as to increase or depress phagocytic activity, namely (1) the leukocytes, (2) the opsonins, (3) the bacteria. The influence of various chemical substances on phagocytosis might be of great importance in bacterial diseases in which various drugs are now used without knowledge of their effect on the processes which produce immunity. A review of the action of chemical substances on phagocytosis with a study of the influence of some extensively used therapeutic agents has been made by Arkin.[1] From the results it appears that the action of chemical substances on phagocytosis varies with their chemical composition and their pharmacologic action. Substances which have an inhibitory effect on oxidation, such as chloroform, ether, morphin, potassium cyanid, alcohol, etc., all depress phagocytosis.

That the oxidative processes play a rôle in phagocytosis is evident because sodium iodoxybenzoate, an organic peroxid, which owes its pharmacologic and germicidal action to the presence of physiologically active oxygen, has a marked stimulating effect on the phagocytosis of streptococci and staphylococci *in vitro*.[2] The action appears to be on the opsonin of the serum. Furthermore, substances like colloidal metals which have a stimulating effect on oxidative processes stimulate phagocytosis to a marked degree. It may be that the beneficial effects of improved oxygenation of the blood in infectious diseases are due in part to the stimulating action on phagocytosis.

Substances like caffein and antipyrin, which are more inert drugs and have little if any effect on oxidation, likewise have little if any effect on phagocytosis. The salts are mostly injurious to phagocytosis to an extent depending on their toxicity, their ability to effect an

1. Arkin, A.: The Influence of Strychnin, Caffein, Chloral, Antipyrin, Cholesterol and Lactic Acid on Phagocytosis, Jour. Infect. Dis., 1913, xiii, 408.

2. Arkin, A.: The Influence of Certain Oxidizing Agents (Sodium Iodosobenzoate and Sodium Iodoxybenzoate) on Phagocytosis, Jour. Infect. Dis., 1912, xi, 427.

exchange of ions with the salts in the cells, and to their ability to combine with the opsonins.

Those substances which depress phagocytosis *in vitro* have been found, when studied *in vivo*, to have a detrimental effect on the immunity reactions, for example, the anesthetics, chloral, morphin, some salts and certain antiseptics. The substances which have been found to stimulate phagocytosis at all are: calcium, magnesium and mercuric chlorids; quinin; colloidal metals; peptone in dilute solution; nucleic acid; a few other leuko-stimulants, such as staphylolysin in weak solution; strychnin sulphate and nitrate; sodium iodoxybenzoate; salvarsan, and other arsenic compounds. It is interesting that all of these which have been studied *in vivo* have also seemed to have a favorable action there, namely, salvarsan, calcium chlorid, quinin, colloidal metals (platinum, silver, gold, copper) and mercuric chlorid in weak solution. Hence it appears that the action of a chemical substance on phagocytosis *in vitro* may be a good index of the effect of that substance when used *in vivo*.

Strychnin has a marked stimulating action on the phagocytosis of streptococci by human leukocytes in the presence of human serum. The action is on the opsonin of the serum apparently by the formation of a more active opsonin-strychnin combination. This action of strychnin seems to offer an explanation of its value in infectious diseases to which many clinicians have attested. It is another example of the empiric use of a drug whose therapeutic value has been placed on a scientific basis, and suggests a more extended use of this substance in infectious diseases. The interaction of the specific antibody and the chemical substance is in this case a beneficial one and suggests the possibility of a combined therapy against infectious diseases, the antibodies produced in the body being increased in amount by drugs introduced from without, or their action on the invading micro-organism accelerated.

Morphin has a depressing effect on phagocytosis, which is due largely to its action on the leukocytes. Large doses of this drug lower the resistance to infection; hence it should be used cautiously in bacterial diseases. Caffein has practically no effect on phagocytosis. Chloral has a distinct inhibitory effect on the phagocytosis of streptococci by human leukocytes. That this detrimental action is of importance in infection has already been demonstrated. Cholesterol reduces the opsonic power of normal serum, probably by combining with the opsonin. Antipyrin has no effect on phagocytosis, or on the formation of protective substances *in vivo*. Lactic acid, under certain conditions, suspends hemolysis and phagocytosis by acting on the complement and the opsonin, and neutralizes the anthracidal action of dog's defibrinated blood. The greater susceptibility to infection in muscular fatigue may be due to increased lactic acid formation.

Clearly the effects of an agent on the processes of immunity should be considered carefully when the use of that agent seems indicated in infectious diseases. The possibility of a combined therapy, consisting of the use of immune serums or vaccines together with certain drugs, suggests itself in the case of drugs which have a stimulating effect on phagocytosis. The drugs may act as stimulants to leukocytosis, increase the production of antibodies, or combine with the antibodies to render them more active. This opens up a new field for the use of chemotherapy, a chemo-immunotherapy.

THE MOTOR BEHAVIOR OF THE LOWER BOWEL

When Gaspard Bauhin discovered the ileocecal valve in 1579 he found that even after death it resists a moderate degree of pressure from the side of the colon, but very little from the side of the small intestine. For this reason the anatomic action, which prevents the fecal material from returning to the ileum after it has reached the cecum, has been believed to be a mechanical one. It is true that, as a rule, the contents of the large and small intestines do not mix; this fact of itself is not sufficient, however, to determine the function of the devices at the union of the ileum and the cecum. Both anatomic structure and physiologic experiments indicate that a strong ileocecal sphincter exists in man. This does not always prevent regurgitation into the ileum. The theory is rapidly gaining ground that the function of the ileocecal sphincter is, as Keith[1] some time ago suggested, to prevent the contents of the ileum from passing too rapidly into the cecum. Dr. Arthur F. Hertz[2] of Guy's Hospital in London has pointed out, as the result of extensive Roentgen-ray observations, that the bismuth-containing chyme reaches the end of the ileum an hour or even longer before any appreciable quantity passes into the cecum, and that often the ileum is still full, four, five or more hours after the last traces of bismuth have left the stomach. Consequently an accumulation of chyme occurs in the last few inches of the ileum, where it undergoes digestion actually for a longer period than it remained in the stomach. There may be active segmentation during the whole of this time; but very little peristalsis can be seen.

Such observations have led to the conclusion that the function of the ileocecal sphincter is to prevent the passage of the contents of the ileum into the cecum until sufficient time has elapsed for the complete digestion and absorption of foodstuffs. The chyme which reaches the cecum contains relatively small quantities of nutrient material in solution. Hertz remarks that ileac stasis is thus a normal physiologic condition of the utmost importance for adequate digestion. Normal ileac stasis is increased in certain conditions which lead to spasm or to inhibition of the normal relaxation of the ileocecal sphincter. This is notably true in forms of peritonitis associated with acute appendicitis.

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1. Keith: London Hosp. Gaz., 1903.
2. Hertz, Arthur F.: The Ileo-Cecal Sphincter, Jour. Physiol., 1913, xlvii, 54.

The ileocecal sphincter is said to begin to relax at infrequent intervals some time after the chyme first reaches it. If it be true that there is exceptionally active peristalsis in the end of the ileum and simultaneous relaxation of the ileocecal sphincter whenever food enters the stomach, obviously the proper filling of the cecum is dependent in no small measure on a gastro-ileac reflex. Observations by Hertz and his colleagues indicate that the cecum and ascending colon are entirely passive, and are filled solely as a result of the activity of the ileum. The passive filling of the colon is described as occurring very slowly except during and immediately after meals, this being the period at which peristalsis at the end of the ileum is most active as a result of the gastro-ileac reflex.[3]

From the immobility of the shadow of the colon observed in man after a bismuth meal, it has been assumed that the progress of the colonic contents depended on peristaltic waves too slow to be observed. From time to time, however, it has been reported that the contents of the cecum and ascending colon can move bodily into the transverse colon, while everything beyond the splenic flexure is carried through the pelvic colon and rectum and evacuated.[4] Evidence has accumulated in favor of the possibility that the contents of one section of the human colon may pass into a more distal section by a rapid movement lasting a few seconds. These large movements of the colon, so different from what one has hitherto been led to suspect, have now been seen on numerous occasions by competent observers. Hertz and Newton therefore conclude[3] that the movements of the colon seen in defecation and also, in normal persons, apart from defecation, are examples of the same phenomenon. Under natural conditions the passage of feces along the colon is mainly due, according to Holzknecht,[5] to a rapid movement along a considerable length of bowel, repeated three or four times a day. Hertz and Newton suggest that this movement is due, most probably, to a powerful peristaltic wave. The chief stimulus to it, as to the relaxation of the ileocecal sphincter, is the entry of food into the empty stomach—a gastrocolic reflex. Hertz and Newton add that in most persons this response results in defecation only after breakfast, as the pelvic colon is then full and the sudden passage of feces from it into the rectum gives rise to the call to defecation. After other meals the desire to defecate is not often felt, as, if the first attempt has been successful, the colon contains comparatively little feces, and under ordinary conditions of eating none are present beyond the splenic flexure until the latter part of the afternoon, or in the end of the pelvic colon until the evening. We are reminded that some persons with an abnormally excitable nervous system experience the desire to empty their bowels after each meal. This is due, on the hypothesis of the English clinicians, to an exceptionally active gastrocolic reflex, and the large movements through the colon are apparently so great that a quantity of feces actually reaches the rectum after each meal.

Little by little the nature of the movements of the entire human alimentary tract is becoming clearly appreciated, thanks especially to the suggestions derived from animal experiments and the fruitful Roentgen-ray method of examination first introduced by Cannon in this country. The old conception of slow and simple peristaltic movements as the sole motor device of the digestive canal has given way to that of a sequence of orderly, specialized neuromuscular mechanisms varying in different parts of the tract.

3. Compare Hertz, A. F., and Newton, A.: The Normal Movements of the Colon in Man, Jour. Physiol., 1913, xlvii, 57.

4. Hertz and Schlesinger: Guy's Hosp. Rep., 1907, lxi, 423. Hertz: Arch. Roentg. Ray, June, 1908.

5. Holzknecht: München. med. Wchnschr., 1909, lvi, 2401.

THE ANTECEDENTS OF GLYCOGEN IN THE LIVER

Glycogen has long occupied a conspicuous place among those chemical substances which take a prominent part in the energy transformations of the body. It is generally recognized that a well-nourished person is likely to abound in glycogen in those storehouses, namely, the liver and muscles, which this reserve nutriment commonly seeks out. When one attempts to define precisely what the precursors of the deposited glycogen may be, some confusion of views may arise. Broadly speaking, glycogen is regarded as representing a reserve material in the human body analogous to the reserve carbohydrate stored up in different parts of plants. It is a wide-spread belief that the liver does not manufacture glycogen from fats; and it is currently admitted that the so-called animal starch can be formed from the proteins of the food, or from the products of their alimentary disintegration, the amino-acids. But the principal source of glycogen, beyond peradventure, is to be found in the carbohydrates of our food.

Inasmuch as glycogen production involves a polymerization of glucose, it might at once be concluded that not all carbohydrates will give rise directly to it. To learn what sugars will lead readily to a storage of glycogen, for example, amounts to ascertaining an important item in respect to their assimilability. In Professor Hofmeister's laboratory at Strassburg, Barrenscheen[1] has taken a very direct method of solving some of the mooted questions in relation to the antecedents of glycogen, by employing directly the surviving isolated mammalian liver. In this way he has successfully perfused the organ with blood containing different sugars and noted the outcome so far as the deposition of hepatic glycogen is concerned. Glucose and levulose readily yield positive results. Neither galactose nor maltose is synthesized directly to glycogen. There are various substances such as lactic acid, glyceric aldehyd, glyceric acid, and

1. Barrenscheen, H. K.: Ueber Glykogen- und Zuckerbildung in der isolierten Warmblüterleber, Biochem. Ztschr., 1913, lviii, 277.

glycolaldehyd, which retain some theoretic interest in connection with the metabolism of carbohydrates and do not yield glycogen; but they are found to act as precursors of sugar in perfused livers, in certain types of diabetic manifestation. It is a matter of surprise and more than passing import that the livers of animals rendered diabetic by the classic procedure of extirpation of the pancreas no longer are able to form glycogen from glucose, even when they are perfused with the blood of normal individuals of the same species. The glycogen-forming function cannot be restored by the addition of pancreatic extracts.

So long as the possibility remains that one of the perversions characteristic of diabetes is the inability of the organism to retain ingested carbohydrates in the form of glycogen until they are needed, we are of necessity bound to learn what we can respecting its physiologic history at every stage of metabolism. The success with which isolated parts of the body have in recent years been compelled to tell their own story, as exemplified in a fragmentary way in the foregoing review, is one of the undervalued contributions to the physiology of the twentieth century.

MINERAL WATERS

An address by the secretary of the American Climatological Association, Dr. Guy Hinsdale,[1] before the balneologic section of the Royal Society of Medicine in London serves to remind us once more of the rather chaotic conditions which still exist in the United States in relation to the subject of mineral springs. It is still quite true, as Hinsdale remarks, that the definition of a mineral water varies with the point of view of the chemist, the geologist, the physician and the dealer. Each has his standard, and no arbitrary line depending on total content of minerals or salts in solution can be drawn between so-called pure waters and those commonly denominated as mineral waters. Indeed, some of the most popular and commercially valuable "mineral" waters in America have almost a minimum of solid constituents in solution.

The Third International Congress of Physiotherapy in 1910 passed resolutions recommending: a revision of analyses of mineral waters and the adoption of an international notation harmonious with modern chemical terms; the study of an international system of classification of mineral waters; the establishment in each country of a complete official descriptive catalogue of all springs and their commercial use; the creation of an international committee on the scientific study of mineral waters. All of these proposals represent steps in the right direction. Although in the past the analytic data pertaining to waters were furnished in such diverse ways that one reviewer discovered in use at least forty-two methods of stating the results, the recent analyses are now almost uniformly expressed in modern chemical nomenclature and decimal units. A rational classification of springs, however, is not always easy to make where they represent all gradations from one extreme group of alkaline waters like those of the Navajo Spring at Manitou, Colorado, or the Waukesha springs in Wisconsin, to the saline group at Saratoga or Mount Clemens in Michigan, the chalybeate waters of Missouri, the arsenic waters of Virginia, or finally the various springs from which effervescent waters of diverse types are derived. To all of this is added the still newer consideration of radio-activity.

The unprejudiced physician who is eager to avail himself of the best therapeutic aids that modern medical science affords cannot help being baffled by the conflicting claims made by the crude balneotherapy of to-day. He sees numerous cases in which relief has unquestionably been obtained by patients who have visited one of the many springs in this country or Europe; but when he attempts to analyze the possibilities—including rest, change of diet and environment—and to determine some standard by which he may intelligently advise those who need his help, the result is a hopeless confusion of ridiculous claims. The added question arises of the relative value of the different uses of the same waters. At some of the widely known spas—for example, Saratoga—the internal use of waters takes precedence; at Mount Clemens, White Sulphur Springs and others the baths are chiefly relied on; at Hot Springs and French Lick the combined method prevails. In view of the diversity of practice and the impossibility of measuring the consequences in any precise way, we agree with Hinsdale in scouting the claims of the specific virtues of particular mineral ingredients in the waters, except in such obvious features as laxative action or the absorption of dissolved iron salts.[2] If we assume, he writes, that approximately equal results are achieved by a course of bathing in waters so dissimilar, we cannot avoid the inference that the chemical constituents of these different springs are not *per se* the active therapeutic agents. That certain baths may be used with good results in a case of syphilis, and likewise in a case of gout, ought to suggest that the hydrotherapeutic or balneologic methods employed are more potent than the fact that the waters employed have a special chemical analysis. The differentiation of mineral springs for therapeutic purposes has some practical basis; but we believe it has been carried too far, especially in European practice.

If the cultivation of the rational use of mineral waters involves an accurate knowledge of their contents, information regarding them must have some guarantee of accuracy. For the past twenty years it has not been

1. Hinsdale, G.: Mineral Springs: Their Analyses, Classification, Therapeutic Uses and Newer Methods of Application; with Special Reference to American Springs, Proc. Roy. Soc. Med., 1914, viii, Balneological and Climatological Section, p. 13.

2. The Absorption of Iron from Mineral Waters, editorial, THE JOURNAL A. M. A., March 14, 1914, p. 856.

possible in France to advertise any mineral water as such, or to exploit a mineral-water station, without the favorable recommendation of a commission under whose direction the analyses are made. If such rules were in force in the United States, fake "lithia" waters would long ago have been driven out of the market.

The damage to mineral springs resulting from uncontrolled commercial ventures is illustrated by conditions at Saratoga. The amount of mineral matter held in solution by some of the waters there obtained is dependent on the quantity of carbon dioxid which impregnates the water and the pressure exerted at the mineral-water vein. For over twenty years an exhaustive pumping of the gas was carried on by a carbonic gas industry, and a great depletion of the mineral-water basin took place, depriving the entire area of materials which Nature had furnished for the maintenance of her natural fountains. Since New York State, through its Reservation Commission, has undertaken a protective policy with regard to the springs, and the pumping operations have been stopped, the restoration of the mineral waters to the Saratoga basin is being accomplished. Examinations by the State Hygienic Laboratory at Albany[3] show the return of a steady flow and fairly constant mineralization varying only with physical disturbances. A few years must elapse before the springs will have returned to all the natural conditions which were present before the gas companies began their operations. These facts serve to show that scientific control may sometimes be a beneficent procedure, and that, presumably through the Public Health Service, it ought to be applied more widely in the United States.

DEATHS FOLLOWING ANESTHESIA

Progressive medicine recognizes that among the most helpful aids to the advancement of the work of our profession are the critical analysis of errors, either in diagnosis or treatment, the frank discussion of mistakes, and the unremitting investigation of the reasons why procedures in current practice fail. For this reason we are interested in a recent review of inquests in England concerning deaths during anesthesia for the years 1910-1913, especially because it attracts attention to "the number of fatalities occurring with melancholy regularity" in different parts of the country. From the lay press accounts of coroner's inquests, Flemming[1] has secured "only such portion of the pabulum as has managed to squeeze through the newspaper filter." The statistics are therefore far from complete and the nature of the anesthetic used has been ascertained in only 542 of the 700 deaths reported in connection with anesthesia. In no fewer than 521 instances among these the anesthetic seems to have been more or less responsible for death. From such uncertain data it is not easy to determine the proper share of blame which should be attributed to surgery; but in 223 cases death is reported to have occurred before the operation was begun. Included in 100 instances where surgery was distinctly a contributing factor were many operations of great severity and of long duration. These accidents are in large measure unavoidable, inasmuch as various surgeons must naturally differ in their capacity for combining rapidity with gentleness.

The statistics regarding the nature of the anesthetics used in the fatal cases reported are instructive.

Chloroform	378
Ether	28
C. E., A. C. E. and A. C. mixtures	100
Nitrous oxid	12
Ethyl chlorid	6
Spinal	8
Scopolamin	2
Hedonal	2
Local	6
Not specified	158

In the majority of the cases the range in age was from 26 to 60 (338 persons) and from 6 to 15 (124 persons).

To American practitioners, less committed than their British colleagues to the general use of chloroform, the apparent dominance of fatalities from this anesthetic at once contrasts with the notably lower figures for deaths under ether. The data cannot be interpreted thus rigidly, however, unless the relative frequency of use of these anesthetics is likewise known. It may be that the percentage of fatalities is far greater with some other anesthetics than with chloroform. Flemming believes that a large number of these accidents would not have occurred if ether had been used during the induction of anesthesia, or at any rate during the struggling stage, and he champions the use of ether whenever possible. We have no desire to open the old controversy here; but these appalling data cannot be dismissed without awakening some inquiries. Are they attributable to the indiscreet selection of the anesthetic or to the limited experience of the anesthetist? Does the false sense of security point to some deficiency in the practical part of our teaching system?

We are well aware that from a strictly scientific point of view statistics such as Dr. Flemming has gathered by indirect methods are of limited value. It has even been maintained that the publication of such fatalities is a mistake; that the public is apt to conclude not that an experienced anesthetist is necessary, but that one who takes an anesthetic is likely to die. They do not realize that many of the accidents are preventable. Whether or not we take the review of Flemming seriously in its bearing on the practice of anesthesia, at any rate it serves to bring out the pressing need of reliable statistics and certain reforms in relation to deaths from anesthetics. If, as has been claimed, the coroner's

3. Milford, L. R.: Recent Analyses of the Saratoga Mineral Waters, IV, Jour. Industrial and Engineering Chem., 1914, vi, 207.

1. Flemming, A. L.: A Review of Inquests Concerning Deaths During Anesthesia, 1910-1913, Proc. Roy. Soc. Med., 1914, vii, Section of Anesthetics, p. 17.

inquest or the customary reports of death are poorly calculated to bring out the truth, some device ought to be introduced to establish the facts so that any needed reforms can be based thereon. Unpleasant details frequently arouse a storm of protest; but when the atmosphere has cleared the ultimate outcome is frequently of decided benefit to all concerned.

Current Comment

INAGGLUTINABLE TYPHOID BACILLI

Freshly isolated strains of the typhoid bacillus not infrequently resist agglutination by typhoid serum. Usually, however, they very soon become freely agglutinable, though occasionally a strain is encountered which resists agglutination through generation after generation. Such inagglutinable typhoid strains have otherwise all the usual characteristics of the typhoid bacillus. This inagglutinability is of considerable interest: unless guarded against, mistakes may result from the use of inagglutinable strains in making agglutination tests; and then there is the question why certain strains should be inagglutinable. McIntosh and McQueen[1] isolated a strain of this kind from a case of typhoid fever and made experiments with it, the results of which throw light on this question. They found, and others have made similar observations, that the inagglutinable strain, when injected into animals, led to the production of typhoid agglutinins which had practically no action on itself, but agglutinated heterologous typhoid strains freely; and furthermore, that the strain in question would absorb typhoid agglutinins just like the agglutinable strains. Hence the inagglutinability cannot be due to loss of affinity for the agglutinins; that is, loss of receptors in the terms of the side-chain hypothesis, but rather to some physical alteration by virtue of which the second step in agglutination fails to take place, namely, aggregation or clumping. It would be interesting to learn how inagglutinable strains behave with respect to opsonification. They appear to have no peculiarities with respect to complement fixation, and are clumped by chemical agglutinants, an observation showing that acid and serum agglutination do not depend on the same factors.

THE OFFICE OF CORONER

About a year ago we commented[2] on the inadequacy of the machinery in this country for proper conduct of the coroner's office, and stated that thorough rehabilitation along modern lines was urgently needed. It was also stated that so long as the coroner remains an elective officer with a continuous tenure of at most four years, it is not likely that the office will be filled generally with properly trained men. A bill is now pending in the New York legislature to do away with the ancient coroner system and to substitute for it a system of medical examiners. The bill provides for a new officer to be known as the chief medical examiner, who must be a skilled pathologist with at least ten years' practical experience in the performing of necropsies, to be appointed by the mayor, and to hold office until he resigns or is removed for cause after a hearing. He will appoint assistant examiners, chemists, clerks, etc., as may be deemed necessary, subject to approval by the board of estimate and apportionment. The power of the present coroner is limited so that this officer will hold inquests only in cases referred to him by the district attorney, acting as a magistrate. The new law also marks the abolishment of the coroner's jury, a body which is costly, useless and often ridiculous — which might be said, however, of the petit jury. The medical investigation of crime is to be the duty of qualified medical officers, capable and responsible. The bill is the result of a joint conference of committees of the New York Academy of Medicine, trustees of Bellevue and allied hospitals, district attorney's office, professors of pathology in the leading medical schools, City Club, Citizen's Union and Short Ballot Association. Its passage would result in the removal of a pernicious, slow, inefficient system, which is a relic of obsolete social conditions.

HEALTH ALMANACS

Three years ago, at the time that the Virginia State Board of Health issued its first "Health Almanac," THE JOURNAL commented on the innovation,[1] commending the board for rescuing from the hands of "patent medicine" fakers this time-honored institution. New editions of Virginia "Health Almanacs" have been issued every year since. Several other states have followed the same plan. The almanacs for Virginia and North Carolina for 1914 are particularly attractive. In the Virginia calendar the familiar monthly tables, giving the days of the week and the month, the time of rising and setting of the sun and moon, and the moon's changes, contain important dates in which, so far as possible, items of scientific interest have been substituted for the hackneyed entries in the old-time almanac. For instance, under January 26, is the entry, "Edward Jenner born, 1823"; February 12, "Charles Darwin born, 1809"; February 13, "John Hunter born, 1728"; March 13, "Joseph Priestly born, 1733"; March 18, "Lady Montague's son inoculated for small-pox"; May 14, "Vaccination first tried, 1796"; June 27, "Dr. Carroll submitted to yellow-fever experiment," etc. Opposite each monthly table is a page of short paragraphs on some specific disease-problem. January, for instance, is devoted to small-pox; February to pneumonia; March to typhoid fever; April to malaria; May to infantile mortality; June to flies; July to typhoid; August to hookworm; September to diphtheria; October to scarlet fever, measles and whooping-cough; November to colds, and December to tuberculosis. Additional pages contain directions for the care and feeding of infants, information regarding typhoid vaccine and typhus antitoxin, and birth and death registration. The North Carolina State Board of Health Almanac follows the same general plan,

1. McIntosh and McQueen: Jour. Hyg., 1914, xiii, 409.
2. The Office of Coroner, editorial, THE JOURNAL A. M. A., May 24, 1913, p. 1644.

1. The Reformed Almanac as a Health Evangelist, editorial, THE JOURNAL A. M. A., April 15, 1911, p. 1115.

but contains interspersed proverbs, admonitions and suggestions. Some of these "healthgrams" are deserving of mention. "Ventilate—don't hibernate." "An open window is better than an open grave." "Sunshine is God's best germ-destroyer." "Most colds are catching." "Fresh air, rest and good food are the only cures for consumption." "The only bad night-air is last night's air." "'Cures' for consumption guarantee only one thing—death." "A city's most valuable asset is wholesome water." "A good iron pump costs less than a case of typhoid." "God bless the man who first invented screens!" "The only good fly is a dead fly." "Preventable diseases are born of ignorance." "Don't take medicine for sleeplessness—take a bath." The alternating pages are filled with short forceful paragraphs on a multitude of different subjects. The value of the almanac as an educational agent is evident. Frequently referred to in every household and preserved throughout the year, the educational matter in it has a much better opportunity to sink into the minds of the people than it would have if contained in a regular bulletin or a health pamphlet. The health almanac offers an admirable opportunity to state boards of health to preach their gospel every day.

THE SURGEON-GENERAL'S LIBRARY IN DANGER

Seldom have the dangers of hasty and routine legislation been better illustrated than by the amazing amendment to the Army appropriation bill, which passed the Senate, Saturday, March 28. The bill contained as one of the appropriation items the clause, "For the Library of the Surgeon-General's Office, including the purchase of necessary books of reference and periodicals, $10,000." The Library of the Surgeon-General's Office has been for many years the pride of the medical profession of the United States, comprising as it does the largest collection of medical and surgical books in existence. It is an inexhaustible mine of scientific information. It is, in fact, the nation's medical library. Its Index-Catalogue is recognized the world over as the best working bibliography of modern medicine, by which scientific men are enabled to find all the existing authorities with the least trouble. Owing to the broad and liberal policy of its administration, for years past the material in the library has been made available to the entire medical profession. Its development has been a growth of many years, and the need of the preservation of its integrity and usefulness will be apparent to any one on the slightest investigation. Yet in spite of all this, without any discussion or careful consideration, without even consulting the Surgeon-General of the Army or the head of the Library of Congress, without apparently arousing a word of protest in the Senate, the following amendment was adopted by that body last Saturday: "Provided that on or before Jan. 1, 1915, said library shall be transferred to and become a part of the Library of Congress, and so much of the amount herein appropriated as may be necessary is made available for paying the expenses of such removal." This hastily considered and unwise effort to pitchfork the Surgeon-General's library into the Library of Congress is entirely without justification or reason; it can only result in obliterating the identity of the Surgeon-General's library and destroying its usefulness. The Library of Congress has no room for the Surgeon-General's library at present and the librarian of Congress does not want it. To move the Surgeon-General's library into the Library of Congress building would simply involve double expense without compensatory advantage, since in order to be of any real use and to fulfil the functions which it has developed, the Surgeon-General's library must maintain its autonomy. To be of service it must be managed in the future as in the past by carefully selected scientific medical men. Its record is such as to entitle it to the confidence of Congress. The Army medical officers who have been in charge of it in the past, such men as Billings, Huntington, Merrill, Reed, McCaw and McCullough, have conducted and developed it to the entire satisfaction of those familiar with its work, and with ever-increasing value to the medical profession and the public. To move it would be an expensive and tactical blunder, and to destroy or even impair its usefulness would be justly regarded by the scientific men of the world as an act of unjustifiable and wanton vandalism. The fact that this amazing proposition could pass the Senate without challenge is only another instance of the dangers of permitting "riders" in the form of irrelevant amendments to be saddled on appropriation bills. The Army appropriation bill passed the House without this absurd provision. Under the parliamentary rules which govern Congress, the measure will now be returned to the House for concurrence. It is earnestly hoped that there will be enough discrimination in the House of Representatives to eliminate this uncalled-for and destructive provision.

Medical News

ALABAMA

Personal.—Dr. B. W. Guyton has been accepted by the board of missions of the Methodist Episcopal Church, South, as a candidate for hospital work in China.——Dr. James Smith, Huntsville, who has been on duty as surgeon of the United Fruit Company, Colon, is home on sick leave.——Drs. Edwin P. Solomon and William H. Wilder, Birmingham, have been appointed division surgeons of the Southern Railway, vice Dr. Benjamin G. Copeland, deceased.——Dr. Robert Nelson, health officer of Birmingham, has resigned. Dr. Nelson was the guest of honor at a farewell banquet given by the members of the Health Department, March 16. —The residence of Dr. Wyatt Heflin, Birmingham, was burned recently, with a loss of $15,000.

CALIFORNIA

Against Contract Practice.—The Sonoma County Medical Society, at its meeting March 12, passed a resolution that no physician should sign a contract with any insurance company to attend persons injured under the workingmen's compensation act.

Stanford Medical Lectures.—The last two lectures of the Stanford University medical course were delivered by Medical Inspector S. F. Gale on "Medical Service in our Navy," March 13, and by Dr. Andrew W. Hoisholt, superintendent of the Napa State Hospital, March 27, on "The History and Nature of Insanity."

Civil Service Examinations.—The State Civil Service Commission announces that examinations will be held May 7, 8 and 9, to provide a register of eligibles from which to fill the positions of physicians in city hospitals. The examination is open to both men and women, citizens of California, and

twenty-one years of age. Complete information and application blanks may be obtained from the office of the State Civil Service Commission, Sacramento.

Personal.—Dr. Stanley P. Black, Los Angeles, has resigned as a member of the State Board of Health in charge of the Southern Branch Laboratory since 1907.——Dr. Walter V. Brem has been appointed division bacteriologist, with offices in Los Angeles, to succeed Dr. Black.——Miss Grace A. MacMillan has been appointed laboratory assistant in the State Hygienic Laboratory at Berkeley. She will assist the director in the serologic work of the laboratory. Miss MacMillan was formerly an assistant in the United States Public Health Service laboratory in San Francisco.——Dr. Thomas D. Maher, San Francisco, has been appointed chief physician of the public schools, vice Dr. Emmet L. Wemple.

State Board Bulletin for February.—The *Bulletin* of the State Board of Health for February is exceptionally interesting. It represents the work of the new secretary of the board, Dr. Donald H. Currie, and his assistants. The secretary announces his intention of following the plan of his predecessor, Dr. Corydon G. Snow, in presenting each month, under the heading "Comments," at least one article of general interest to the readers of the *Bulletin*. In the February number a brief résumé is given of the situation in the state with reference to plague, small-pox, leprosy, yellow fever, Asiatic cholera, typhoid fever, rabies, hookworm and diphtheria. All of these diseases were present in the state during the month except plague, yellow fever and cholera. It is stated that the United States Public Health Service, on the completion of its squirrel extermination campaign this spring, expects to have the most heavily infested counties of the state freed from plague-infested ground-squirrels. The campaign will then be continued in the other counties. Yellow fever is mentioned on account of the possibility of its being brought into the state from the infected parts of Mexico, and Central and South America. The yellow fever mosquito at present is not found in California, but it is believed that it might possibly be carried into the interior of the state where conditions are favorable to its propagation. It might come either through the ports, or by way of railroad trains from Texas which is only two or three days away. Cholera is also mentioned on account of the remote possibility of its being brought in by visitors from Asiatic ports.

CONNECTICUT

Scarlet Fever at Yale.—Since the first of the year eleven cases of scarlet fever have occurred among the students at Yale. The last case to occur was reported March 23.

Clean-Up Week.—The week of April 5-11 has been set aside as clean-up week in New Haven. The school children have been enlisted, as in previous years, for the discovery of insanitary yards and buildings. Dr. Harry B. Ferris is chairman of the general sanitation committee and Dr. Thomas H. Russell, Jr., chairman of the committee on flies.

FLORIDA

New Officers.—Volusia County Medical Society at De Land: president, Dr. Edward F. McConnell, De Land; secretary, Dr. Davis Foster, Hawk's Park.

Experiment Building for State Board.—A building is being erected at a cost of $2,200, on the grounds near the State Health Office, Jacksonville, by the State Board of Health, to be used for conducting experiments and making tests on animals suspected to have communicable or contagious diseases.

GEORGIA

Want Zones of Quiet.—A petition has been signed by more than two hundred physicians of Atlanta requesting that legislative measures be enacted to establish "zones of quiet" near hospitals of the city.

Personal.—Dr. Bartow S. W. Daniels has resigned as city physician of Savannah.——A dinner was given in honor of Dr. Guy D. Ayer, Atlanta, by physicians of Atlanta, March 21.——Dr. James P. Smith, Augusta, is reported to be critically ill at the Augusta City Hospital.

New Officers.—Ocmulgee Medical Society at Hawkinsville, March 20: president, Dr. A. A. Smith; secretary, Dr. Robert G. Stone, both of Hawkinsville.——Seventh District Medical Society at Rome, March 12-13: president, Dr. William G. England, Cedartown; secretary, Dr. William L. Funkhouser, Rome.

Medical Hall Ready.—The Georgia Medical Society, Savannah, occupied its new building on Drayton Street, March 13. The building is known as the Medical Hall of the Georgia Medical Society, will be used as a meeting-place for the organization and also for social gatherings, and will also provide an appropriate home for the valuable library of the organization.

Examination for Chief Food Inspector.—The city of Savannah has an ordinance providing for the establishment of a department of food inspection, the regulation, slaughtering, handling, care and sale of meat, poultry, game, fish and oysters, and has adopted the unique procedure of making the appointment subject to technical and practical examination of the candidates, who may be from any portion of the United States. The examination for this position is advertised in various medical and veterinary journals throughout the country. An examination will be held simultaneously in Boston under the direction of Dr. M. J. Rosenau of Harvard Medical School; in Washington under the direction of an officer of the United States Public Health Service; in Chicago under the direction of Health Commissioner George B. Young, and in Savannah under the direction of City Health Officer, Dr. William F. Brunner, assisted by Drs. John W. Daniel and W. C. Burnett, and Victor H. Bassett, city bacteriologist.

ILLINOIS

Dispensary for Evanston.—A free medical and dental dispensary is to be opened at the north end of Maple Street, Evanston, about May 1. Special attention is to be given to school children.

Anti-Tuberculosis League Meeting.—The Woodford County Anti-Tuberculosis League has decided to hold four general meetings during the year, and twelve local meetings. The league is to issue a quarterly bulletin, to be edited by Dr Homer A. Millard, Minonk.

Personal.—Dr. Olive Hughes Kocher of the staff of the Elgin State Hospital has been transferred to the Watertown State Hospital.——Dr. Esther A. Hart Stone of the staff of the Watertown State Hospital has been transferred as physician to the State Home for Girls, Geneva.

Chicago

Personal.—Dr. Frank Billings has returned from a trip to the Mediterranean.

State Isolation Hospital Started.—Mayor Harrison, on March 27, turned the first shovelful of earth of the ground for the new contagious disease hospital at Marshall Boulevard and Thirty-First Street. The hospital, when completed will accommodate 600 patients.

Surgeon Wins Suit.—In the case of Dr. Coleman G. Buford against the estate of A. L. Sercomb for $5,000 for an operation performed on Mrs. Sercomb, the probate court returned a verdict of $5,050 in favor of Dr. Buford, that is, the original claim and $50 for consultation and examination of Mr. Sercomb.

Milk Producer Has Small-Pox.—On March 16, the Department of Health collected samples of milk for sediment testing. For a farmer near Bass, Ind., the test was so unfavorable that notice was sent him to appear before the Board of Health. Eleven days later a letter was received from the man, saying that he could not come to the city, since he had been ill with small-pox since March 9, and had not yet recovered. During this time, milk had been coming in from the farm daily.

The Contagious Disease Hospital Question.—Under this heading the *Official Bulletin of the Chicago Medical Society* advises, for the best interests of the community, that any contagious disease hospital built by the community should be provided with accommodations for pay as well as free patients. It agrees that if the health commissioner will guarantee to obtain the necessary frontage consent for the location of such a hospital, in a part of Chicago reasonably accessible, the society will build the hospital, provided it be under community control.

INDIANA

New Officers.—Whitley County Medical Society at Columbia City, March 10: president, Dr. Oliver V. Schuman; secretary-treasurer, Dr. David S. Linvill, both of Columbia City.

Sanatorium Notes.—Work on the new St. Joseph's County Tuberculosis Hospital will begin about April 1; $12,000 has been appropriated for this purpose.——Floyd County Hospital Association has filed articles of incorporation and will establish an open-air camp for tuberculosis on the knobs, northwest of New Albany. A site has been secured on the Vincennes Road, and a dozen or more cottages or open-air shacks have been donated by societies and fraternal orders of New Albany.——Bert H. Whiteley has given a hospital to the city of Muncie.

MARYLAND

Asks for More Vaccinators.—Health Commissioner Nathan R. Gorter appeared before the Board of Health of Baltimore, March 10, and asked for more than fifty additional physicians as vaccinators. Since Christmas eve, 177 cases of small-pox have been discovered, and the present force is unable to cope with the situation.

Personal.—Dr. Gerard H. Lebret, former chief resident physician at St. Luke's Hospital, Baltimore, has been appointed radiologist at the New Jersey State Hospital, Trenton.——Dr. Samuel C. Chew, Baltimore, who has been ill at his home at Roland Park, is convalescing.——Dr. Marshall D. West, Catonsville, has recently established a small-pox hospital at Ilchester, where there are four patients, and one at Hillsdale, with nine patients.

To Prevent Small-Pox.—In an effort to prevent the spread of small-pox which has been causing consternation among the residents of Curtis Bay and the surrounding districts, a movement has been started by Dr. William D. Scott, which has received the commendation of not only the residents of South Baltimore, but also of the heads of corporations that employ large numbers of men in that section. Dr. Scott suggested the advisability of starting a campaign to vaccinate every man employed by the large corporations in that section and immediately began work by vaccinating fifty-two men in the Davidson Chemical Company in one day.

Campaign for Contagious Disease Hospital.—The Baltimore City Medical Society and the Medical and Chirurgical Faculty of Maryland have taken up the fight for a hospital for infectious diseases in Baltimore and intend to see that a hospital containing 300 beds is provided for such cases. Baltimore has only 37 beds at Sydenham, as compared to 430 beds in Philadelphia, 215 in Cincinnati and 125 in Rochester. A bill was introduced into the general assembly last week authorizing a bond issue of $750,000. The physicians will go before the senate some time this week. They will also go before the city council and will hold public mass meetings. The body having immediate charge of the campaign is a committee of the Baltimore City Medical Society, but both this society and the medical faculty are behind the movement. Members of the committee are: Drs. Archibald C. Harrison, Chairman; Winford H. Smith, superintendent of the Johns Hopkins Hospital, Louis P. Hamburger, Charles O'Donovan and Thomas R. Brown, president of the Baltimore City Medical Society.

MICHIGAN

New Officers.—Saginaw County Medical Society at Saginaw, March 19: president, Dr. Robert McGregor; secretary-treasurer, Dr. Alexander R. McKinney, both of Saginaw.

Appropriation for Hospital.—The Detroit City Council's committee of health and city hospitals, on March 23, made an appropriation of $812,000 for additional land and buildings for the Herman Kiefer Contagious Disease Hospital, and also approved the appropriation of $400,000 for a Tuberculosis Building and $100,000 for a unit for the proposed General Hospital, and the Board of Health Estimate of $60,000 for the care of tuberculosis patients.

Septic Sore Throat at Ann Arbor.—Up to March 24 about one hundred cases of sore throat had occurred among the students at the University of Michigan. The disease in some cases is severe. While the dean, it is reported, claims that the disease is only an ordinary sore throat, others claim that the disease is of the septic variety. An investigation has resulted in the exclusion of the water-supply as the source of the disease, and the milk-supply of the students afflicted is being investigated.

No Compensation for Militia Surgeon.—Dr. Floyd A. Roberts, Flint, an officer in the Medical Corps, N.G., Mich., during the recent labor troubles in Calumet, received injuries, while on duty, that resulted in blood-poisoning and partial disability. He made application to the state for compensation, but was informed by the attorney general that such cases did not come under the workingmen's compensation law, and that, furthermore, the fact that he was not permanently injured would militate against his receiving any compensation.

Personal.—Dr. George B. Gesner, health officer of Marshall, is seriously ill with septicemia.——Dr. Harvey J. Chadwick, Grand Rapids, who is ill with pneumonia, is reported to be improving.——Dr. Charles H. Oakman has been elected president of the Detroit Board of Health, vice Dr. Johnson B. Kennedy, term expired.——Dr. and Mrs. Ralph O. Fuerbringer, Saginaw, have returned from abroad.——Dr. Roscoe C. Main has been appointed full-time health officer of Marquette.——Dr. Sherman Gregg, St. Joseph, has been appointed assistant physician of the Kalamazoo State Hospital, vice Dr. Edmund M. Pease, resigned.——Dr. Levi A. Harris has been appointed postmaster of Gaylord.

MINNESOTA

Personal.—Dr. Pierre A. Hilbert, Melrose, has returned from a trip to the Panama Canal Zone.——Dr. Conrad A. Neumann, Lewiston, was operated on at Rochester, March 22, for septicemia.

New Public Health Association.—At the first meeting of the Minnesota Public Health Association, March 13, the organization was perfected and the following officers elected: president, E. W. Randall, St. Paul; vice-president, Dr. W. J. Mareley, Minneapolis; honorary vice-presidents, Gov. Adolph Eberhardt, and Pres. George F. Vincent of the University of Minnesota; and secretary-treasurer, H. Longstreet Taylor, St. Paul.

Infectious Diseases in Twin Cities.—On March 22 it was reported that since January 1 there had occurred 628 new cases of scarlet fever and 782 cases of diphtheria in Minneapolis. Both diseases were reported to be unusually virulent, attacking an unusual proportion of adults. Up to the date mentioned there had been 401 more cases of diphtheria than in any previous year between January 1 and April 1. The deaths from diphtheria were 49 and from scarlet fever 31. Violations of quarantine regulations have been wholesale, it is reported. In St. Paul since January 1 there had been 688 cases of scarlet fever with 14 deaths, and 106 cases of diphtheria with 5 deaths.

Mayo Clinic Opened.—The new Mayo Clinic Building, Rochester, was formally opened, March 6, with a reception in which about sixteen hundred people participated. The building is of brick and masonry construction, four stories in height. The building is provided with rooms for Drs. William J. and Charles H. Mayo, Christopher Graham and Edward S. Judd. The business offices and general clinical rooms are on the first floor; the second floor is for diseases of the eye, ear, nose and throat, bacteriologic laboratories and the Roentgen-ray department; the third floor contains laboratories, reading rooms and staff rooms, and the fourth floor has an immense store room for the disposal of specimens and also the photographic equipment of the clinic.

MISSISSIPPI

State Association Meeting.—The forty-seventh annual meeting of the Mississippi State Medical Association will be held in Columbus, April 14 to 16.

Personal.—The residence of Dr. Robert A. Anderson, Gulfport, was burned March 25, with a loss of $15,000.——Dr. Morris J. Alexander, Tunica, has resigned as president of the Mississippi State Board of Health.——Dr. S. Wade Glass, Lyon, has been appointed a member of the State Board of Health.

MISSOURI

Personal.—The office of Dr. William P. Rowland, Bevier, was burned March 24.——Dr. William A. Clark, Jefferson City, was seriously injured in a collision between his automobile and another motorcar, March 14.

Class Reunion.—Seventeen of the thirty-three members of the class of 1894 of the old Kansas City Medical College, met in Kansas City, March 23, and effected a permanent class organization, electing Dr. Andrew M. Kirkpatrick, La Harpe, Kan., president, and Dr. Thomas Fields, Kansas City, secretary.

St. Louis

Mount St. Rose Fund.—The campaign to raise $300,000 for the Mount St. Rose Hospital has resulted thus far in contributions amounting to nearly $40,000.

John Green Memorial.—A memorial for the late Dr. John Green was held, April 2, in the Graham Memorial Chapel, Washington University. Among the speakers were Dr. Washington E. Fischel, Prof. E. A. Engler, Dr. Arthur E. Ewing and William Trelease.

MONTANA

Northern Health Officers to Meet.—The Northern Montana Health Officers Association was organized at Havre, March 23. The object of the association is to secure better cooperation among county and city health officers, to discuss problems of public health and to improve living conditions throughout the state.

Resolutions on Vivisection.—At its regular meeting, March 14, the Gallatin County Medical Society adopted resolutions deprecating the attempts of the periodical "*Life*" to hinder and prevent research by false and overdrawn illustrations, and endorsed the work of "*Puck*," which is endeavoring to counteract these attempts.

NEW YORK

Health Bulletin.—The first issue of the *Monthly Bulletin of the Syracuse Bureau of Health* will appear late in April. The first issue will be practically given over to infant welfare matters.

Start on Tuberculosis Hospital.—Excavation has been commenced for the foundations of the Onondaga County Tuberculosis Hospital, Hopper's Glen. The contract calls for the completion of the building by October 4.

Increase Salary of Indian Physicians.—The Arndt bill, which increases the salary of the physicians to the Onondaga and St. Regis Indians, passed the assembly, March 20. This bill advances the pay of the physicians from $300 to $900 per year.

Quarantine on Bridge Lifted.—In response to a communication from Mayor Dores of Niagara Falls, Dr. F. Montizambert, director-general of public health, at Ottawa, informed the mayor that the quarantine on the Canadian side of the bridge on account of small-pox in Niagara Falls on the American side would be lifted at the end of March.

Dispensary Opened.—The Syracuse Free Dispensary, recently erected at 610 East Fayette Street, was thrown open to the public March 30. In the evening the formal opening ceremonies took place, at which Dr. Richard E. Cabot, Boston, delivered the chief address. Chancellor James R. Day formally tendered the dispensary the use of the basement and the first two floors of the building together with the equipment.

Personal.—Dr. Sedgwick E. Austin, Auburn, who has been seriously ill with septicemia, is reported to be improving.——Dr. George G. Whitaker, city physician of Fulton, has resigned.——Dr. Robert S. Reed, bacteriologist at the Geneva experiment station, has been appointed a member of the New York Milk Commission.——Dr. George R. Kinne, Syracuse, who has been seriously ill at the Hospital of the Good Shepherd, is reported to be improving.

Christian Science Bill Passes Senate.—The McClelland-Thorn bill permitting christian scientists to treat the sick has passed the assembly and the senate and been sent to the governor for his signature. This bill amends the medical law so that people of the state may resort to christian science for help without violating the provisions of the medical practice act. It exempts from this act "any person who ministers to or treats the sick or suffering by mental or spiritual means without the use of drugs or any material remedy." During the meeting of the Medical Society of the County of New York on March 23 telegrams were sent to the senate and assembly protesting against this bill and the chiropractic and naturopath bills now before the legislature.

New York City

Councilman to Speak in Brooklyn.—Dr. William T. Councilman, Boston, will deliver an address on "Glioma" before the Brooklyn Pathological Society, April 9.

To Lift Debt on Blind Home.—The New York Association for the Blind has inaugurated a campaign to raise $300,000, part of which is to be applied to the mortgage of the new Lighthouse on East Fifty-Ninth Street and the remainder to form a working fund for the institution. Forty-one thousand dollars have already been subscribed toward the fund.

Hospitals Accused of Transferring Dying Patients.—A report made by the Hospital Investigating Committee to the Board of Estimate recently condemns private hospitals which receive city aid for emergency service for sending dying patients to Bellevue and Kings County hospitals in order that their own death records may be kept as low as possible. Eighteen patients brought to Bellevue Hospital in private ambulances during the three-month period under consideration was considered evidence of the tendency of private hospitals to carry dying patients to Bellevue rather than to their own hospitals. The committee recommends that the Ambulance Board make rules to compel ambulances to carry dying patients to the nearest hospital.

NORTH CAROLINA

Confiscated Liquor to Go to Hospitals.—The hospitals of Raleigh have received from the municipal court several hundred bottles of fine liquor, confiscated by the court from five negro druggists convicted of the illegal sale of alcoholic liquors.

Personal.—Dr. Lewis B. McBrayer, Asheville, has been elected superintendent of the North Carolina State Sanatorium for Tuberculosis, Montrose, and director of the Bureau for the Prevention of Tuberculosis, recently established by the State Board of Health. In addition to the superintendency, Dr. McBrayer will have charge of the extension of the antituberculosis crusade throughout the state.——Dr. M. Hall Fletcher, Asheville, has been elected a member of the Buncombe County Board of Health, vice Dr. Lewis B. McBrayer, resigned.——Dr. Carl V. Reynolds, Asheville, has been elected health officer of the city, to succeed Dr. Lewis B. McBrayer, resigned.

NORTH DAKOTA

New Officers.—University Medical Society at Grand Forks: president, Solveig Thordarson; secretary, Elmer Hancock.

Personal.—Dr. Clarence E. Lommen has been appointed local surgeon for the Soo System at Fordville.——Dr. Albert M. Fisher, Bismarck, has been appointed physician of the state penitentiary.

OHIO

Campaign for Hospital.—A committee has been appointed to raise $500,000 for St. Luke's Hospital, Cleveland. The money will be used to liquidate an indebtedness of $100,000 and to erect additional buildings for the institution, including a new power-house and service building.

Personal.—Dr. Marie S. Perfect, Columbus, who was struck by a street-car and seriously injured recently, is reported to be convalescent.——Dr. William C. Hayes has succeeded Dr. Edward V. Hug as health officer of Lorain.——Dr. Thomas K. Wissinger, Columbus, was seriously injured in a collision between his automobile and a trolley car, March 18.

Cincinnati

Personal.—Dr. Herbert A. Brown has resigned as workhouse physician.——Drs. J. Henry Schroeder and Sidney Lange sustained severe injuries in a collision between the automobile in which they were riding and another motor car, March 16.

Small-Pox Annex.—Considerable controversy has arisen over the location of the small-pox annex of the new City Hospital. Property owners residing near the new hospital have entered protest against having the annex located in that vicinity, while a suggestion to place it near the tuberculosis branch has met with opposition on the part of the Antituberculosis League. At a meeting of the Academy of Medicine, March 23, the consensus of opinion was in favor of placing it near the new general hospital.

Health Board Members Resign.—Four out of six of the members of the Cincinnati Health Board resigned, March 25. Those who resigned were Drs. Edward W. Walker, George A. Fackler, Clifford Schinkal and William Breed. The only other medical member of the board was not present at the meeting which precipitated the resignations. The trouble is said to have been due to a remark of the mayor's regarding the manner in which the Health Department officials were appointed, in which he intimated that the board was "playing politics."

OREGON

Cancer and Tuberculosis Symposium.—At the meeting of the City and County Health Officers in Portland, March 21, symposiums were held on cancer and tuberculosis.

Medical College Site Donated.—Twenty acres of land in South Portland, valued at $100,000 have been donated as a site for the campus and buildings of the Medical School of the University of Portland, by the Oregon-Washington Railroad and Navigation Company, the terms stipulating that the site may be used for public purposes, such as a hospital or institutions for the furtherance of scientific research and investigation, and teaching along such lines.

Conservation of Vision.—Dr. Calvin S. White, Portland, president of the Oregon State Medical Society, has appointed the following commission: Dr. Joseph L. McCool, Portland, chairman; Drs. John F. Dickson, William L. Wood, Frank B. Eaton, George Ainslie and Ralph A. Fenton, Portland; Dr. Claude M. Pearce, Baker; Dr. Jocelyn J. Emmens, Medford, and Dr. Justin M. Waugh, Hood River. This commission is empowered to appoint an advisory commission to consist of one educator, one architect, one railway official, one press representative, one lumberman, one illuminating engineer, one banker, one merchant and the superintendent of the State School for the Blind.

PENNSYLVANIA

Personal.—Dr. Stanley F. Druckenmiller, Lansford, has been appointed medical inspector of the Lehigh and New England Railroad.——Dr. William L. Crawford, Dillsburg, who has been ill from appendicitis, is reported to be improving.

Small-Pox in Chester County.—Nine cases of small-pox have been discovered in Chester County. Two at Toughgenamon, near Kennett Square. The 450 residents of the village were ordered to be vaccinated. Church services have been ordered discontinued and the public schools were closed.

Medical Pantheon for Wilkes-Barre.—Plans are being prepared for the Luzerne County Medical Society building, to be erected on South Franklin Street, Wilkes-Barre. The building will have a large circular auditorium and a domed ceiling. On the first floor the library of the society will be housed, and there will also be club rooms for members; on the second floor there will be the directors' room, committee rooms and check room.

Philadelphia

Hospital Addition.—Work was started, March 26, on another building for medical cases at the Jewish Hospital, Old York Road and Tabor Street. The new structure will cost $60,000 exclusive of the ground and will be of stone and brick, two stories and a basement.

Personal.—Dr. Charles A. Groff has resigned as assistant chief medical inspector of the Bureau of Health.——Dr. Samuel S. Woody, having successfully passed the civil service examinations, has been appointed chief resident surgeon of the Philadelphia Hospital for Contagious Diseases.

Gifts to Woman's College.—In addition to the gifts of $16,000 noted in THE JOURNAL of March 21 for the endowment fund of the Woman's Medical College of Pennsylvania, and erroneously attributed to the Woman's Hospital, an additional anonymous gift of $5,000 has been received, and one of the incorporators, recently deceased, has left a bequest of $1,000 for the endowment fund of the college.

Farm for Feeble-Minded.—Plans are being perfected to raise $10,000 by private subscription to establish a colony for the temporary care of feeble-minded children in eastern Pennsylvania, until the legislature appropriates money for permanent quarters. More than twenty-five offers to lease or sell farms within 30 miles of this city have been sent to Dr. Walter S. Cornell, chief medical school inspector. Several places have been inspected, but a farm of about 100 acres is desired.

Site for New Hospital Building.—Eighteen two- and three-story brick dwellings adjoining St. Mary's Hospital, Frankford Avenue and Palmer Street, have been purchased by the Sisters of the Third Order of St. Francis of Assisi. These buildings will be torn down to make way for a new hospital building. The conveyance of these properties give to the hospital an additional frontage of 70 feet on Palmer Street and of 270 feet on Sepviva Street. The old hospital building on the corner of Frankford Avenue and Palmer Street will be torn down to make way for part of the new building.

Hospital Efficiency Meeting.—More than one hundred hospital representatives attended a meeting called by the Philadelphia County Medical Society, March 25. The speakers were Dr. Edward Martin, who presided; Dr. Robert G. LeConte, Dr. George E. de Schweinitz, W. B. S. Thorne, vice-president and treasurer of the Union Pacific Railroad Company, Bromley Wharton, secretary of the State Board of Charities, and Alexander M. Wilson of the Department of Health and Charities. A resolution to adopt the work being done by the committee on hospital efficiency was adopted unanimously.

Inebriates Off Hospital's Pay Roll.—On March 23, Superintendent Walsh, put a new regulation into effect, that inebriates admitted to the Philadelphia General Hospital for treatment will be barred from appointment on the hospital roll to do light work with pay. Acting Director Wilson found that inebriates recurrently had themselves committed to the hospital where they would perform duties of cleaners, attendants or orderlies, and receive from $5 to $20 a month, and thus earn enough money to start on another debauch. During the last six months, eighty-three male convalescents were placed on the pay roll, of whom forty-three were from the inebriate wards.

SOUTH CAROLINA

Personal.—Dr. Thomas J. Lancaster has succeeded Dr. James W. Babock as superintendent of the State Hospital for the Insane, Columbia.——Dr. George A. Hennies, Chester, sustained painful injuries in a runaway accident, March 19.

Hospital for the Study of Pellagra.—Congress has authorized the establishment of a hospital at Spartanburg for the care and study of patients with pellagra. A bill for the establishment of a hospital by the state for the study of this disease was recently defeated in the legislature. The Thompson-McFadden Pellagra Commission has made Spartanburg its headquarters during the past two years. The establishment of the federal hospital should greatly facilitate the work of the commission.

VIRGINIA

Public Health Meeting.—The meeting of the Virginia Public Health Association will be held April 23-24, at the University of Virginia, Charlottesville.

License Exemption Bill Becomes Law.—Governor Stewart permitted Senate Bill 70, which exempts physicians from the payment of licenses to the state, to become law without his signature. This fight has been carried on by the physicians of the state for many years, and there is general rejoicing over the victory.

Small-Pox in the State.—March 21, it was estimated that there were 500 cases of small-pox in the state, the state health commissioner stating that the disease was prevalent in 40 per cent. of the counties. The commissioner also stated that the disease has been more virulent this year than for a long time past. In two instances the disease attacked the heads of families who had for years defied and resisted attempts to have them vaccinated. They then lost no time in having the members of their families vaccinated.

Personal.—Dr. Meads Ferguson, Richmond, has resigned as city bacteriologist to become editor of the *Southern Planter*.——Dr. Francis Randolph Crawford, Kernstown, a medical missionary of the Southern Presbyterian Church, has sailed from Europe for Shanghai.——Dr. T. Edward Baird, Norfolk, has been appointed medical quarantine officer of the Elizabeth River District, vice Dr. Frank H. Hancock.——Dr. Knox E. Miller, Richmond, for two years hookworm inspector of the state, has resigned and been succeeded by Dr. Albert P. Traynham, Richmond.

WASHINGTON

Personal.—Dr. Cline F. Davidson, chief medical examiner of the Seattle Health Department, has resigned, and the position is to be abolished.——Dr. Walter E. Keehl, Cle Elum, sailed for Europe March 28.

Vetoes Rat-Killing Bill.—An appropriation of five thousand dollars to pay the salaries of thirty rat catchers who have been employed in the antiplague campaign at Seattle was vetoed by Mayor Gill. This was done in face of the report that plague infected rats have recently been found on the water fronts of the city.

GENERAL

Monument to Finlay.—Friends of Dr. Carlos J. Finlay, Havana, Cuba, have decided to raise funds to erect a monument in his honor. The funds on hand have been raised by popular subscription. Dr. Finlay, who was the first person to put forth the theory of the transmission of disease by the agency of mosquitoes, has retired from active work.

Mental Hygiene Election.—The sixth annual meeting of the National Committee of the Society for Mental Hygiene was held in New York City, March 10. Dr. Lewellys F. Barker, Baltimore, was elected president; Dr. William H. Welsh, Baltimore, vice-president; Dr. Thomas W. Salmon, New York City, director of special study, and Mr. Clifford W. Beers, New York City, secretary.

Meeting of Pacific Coast Oto-Ophthalmologic Society.—At its coming meeting in Seattle, July 1-3, 1914, the Pacific Coast Oto-Ophthalmologic Society will have as a guest, Col. Robert H. Elliot of London, who will deliver an address and demonstrate his operative methods, including the trephining operation for glaucoma. The territory embraced by the membership includes the states west of the Rocky Mountains and also British Columbia.

International Surgical Association.—The fourth triennial meeting of this association will be held in New York City, April 13 to 16. The program is to be limited to the consideration of three main topics: (1) Gastric and duodenal ulcers, with papers by De Quervain, Balse, Hartman and Lecène, Paris; Mayo, Rochester, Minn.; Moynihan, Leeds, and Payr, Königsberg. (2) Grafts and transplantations, with papers by Morestin, Paris; Villard, Lyons; Ulmann, Vienna; Lexer, Jena, and Carrel, New York. (3) Amputations, with papers by Witzel, Düsseldorf; Ceci, Pisa; Kusmik, Budapest; Binnie, Kansas City; Durand, Lyons, and Ranzi, Vienna. Foreign members have been invited to attend the meeting of the American Surgical Association in New York, April 9 to 11. At the close of the session, April 16, many of the foreign surgeons will make a tour; the itinerary will include Philadelphia, Baltimore, Washington, Chicago, Rochester, Minn., and Boston.

Bequests and Donations.—The following bequests and donations have recently been announced:

Maimonides Kosher Hospital, Chicago, an additional donation of $9,000 by Abraham Slimmer, Dubuque, Iowa.

Beverly (Mass.) Hospital, toward the Charles Ingalls Giddings Memorial Fund, one-half the remainder of the estate of Mrs. Martha P. Webb, Brookline, of $40,000, after payments of bequests.

Boston Baptist Hospital, Perkins Institute for the Blind, Massachusetts Eye, Ear, Nose and Throat Infirmary, each $1,000 by the will of Miss Sarah E. Pratt.

Long Island College Hospital, Brooklyn, Brooklyn Home for Consumptives, Brooklyn Hospital, and the House of St. Giles the Cripple, each one-tenth of an estimated estate of $200,000 by the will of Mrs. Matilda E. Webb.

Stony Wold Sanatorium, St. Rose's Free Homes for Incurable Cancer, and the New York Medical College and Hospital for Women, each $3,000 by the will of Mrs. E. N. Andreas.

State Orthopedic Hospital, Lincoln, Neb., and Home for Dependent Children, each about $50,000 by the will of Charles Geunchi.

Episcopal Hospital, Philadelphia, $5,000; one-half of the residuary estate, valued at $100,000, to revert after the death of the legatee to St. Martin's College for Boys, Home of Rest, Episcopal Hospital, Home for Crippled Children, Philadelphia; and the proceeds of the sale of the house eventually to be given to the Pennsylvania Hospital for the endowment of a free bed in the children's ward, in memory of Mary M. McNamany, by the will of Margaret A. May.

FOREIGN

Leprosy in Germany.—The cable states that the wife of a government official at Danzig, Germany, has been certified as leprous and has been sent to a lepers' hospital.

Plague at Havana.—Under date of March 25 three new cases of plague were reported at Havana. The persons attacker are Spaniards employed as clerks by a sugar firm.

Archives for Eugenics.—The latest new periodical on this science is the *Archiv für Frauenkunde und Eugenik*, founded by Dr. Max Hirsch of Berlin and issued by the Kabitsch publishing house at Würzburg.

Death of Joachimsthal.—One of the leading orthopedists of Germany, Prof. G. Joachimsthal of Berlin, died recently, aged 50. He founded in 1900 a private clinic for orthopedic surgery. Since Hoffa's death, in 1908, he has been chief of the university clinic for orthopedic surgery, and has written extensively on this specialty.

International Congress of Medical Radiology.—The seventh international gathering to discuss the medical aspects of electrology and radiology is to meet this year at Lyons, France, July 27-31, with Professor Renaut in the chair. Among the seven addresses is one by Lumière, of color photography fame, on the action of Roentgen rays on the photographic plate; one on clinical electrocardiography by Nicolai of Berlin, and Vaquez and Bordet of Paris. Schnee will discuss ionotherapy, and Doumer the action of high frequency electric currents on surgical tuberculosis, while Falta of Vienna and Sommer of Zurich will discuss radium. A prize of $200 is offered for the apparatus for electrodiagnosis best fulfilling certain conditions formulated at the Barcelona congress in 1912. There were no apparatus presented at the congress last year deemed worthy of this prize.

Official Investigation of Salvarsan Demanded.—The medical members of the German Reichstag (Drs. Becker, Gerlach, Schatz and Struve) recently asked for an official report from the imperial chancellor on the questions (1) as to the truth of the reports now circulating in the lay and medical press that several hundred fatalities have already followed the treatment of syphilitics with salvarsan and that permanent or transient injury of the health has resulted; (2) whether salvarsan is dispensed without a physician's prescription; (3) whether the amount of arsenic contained in salvarsan is several times the maximal dose established in the Pharmacopeia, and (4) whether the fatalities and injury of the health are to be ascribed to the arsenic content of the salvarsan.

The official answer to these questions is given in full in our German exchanges of March 10. It states in effect that as physicians are not required by law to report cases of serious injury from salvarsan, the authorities have no official data on the subject. The cases that have been published in medical literature can be explained in part by injudicious selection of patients, by defective technic or by peculiar features of the disease, and in part by the arsenic content of the salvarsan in especially susceptible persons. According to the evidence to date, only part of the injuries can therefore be ascribed to the toxic action of the salvarsan. The general verdict of approval and appreciation of salvarsan is cited, and the concluding paragraph states that the single dose of salvarsan ranges from 0.1 to 0.6 gm. arsenic. This is in fact several times the corresponding maximal dose of arsenic in arsenous acid (0.004 gm.). It must be remembered, however, that according to the professional press, the arsenic in salvarsan is in a materially less toxic form than in arsenous acid.

CANADA

Canadian Medical Association Meeting.—Dr. Thomas McCrae, Baltimore, is to deliver the address in medicine at the Canadian Medical Association meeting, St. John's, N. B., July 7-10; Dr. J. Rutherford Morison, professor of surgery, University of Durham, Newcastle-on-Tyne, England, the address on surgery; Dr. Robert Jardine, professor of midwifery, St. Mungo's College, Glasgow, Scotland, the address in obstetrics, and Dr. Charles A. Hodgetts, Ottawa, the public lecture.

New Health Code for Montreal.—One of the first measures to come before the new city council of Montreal is the establishment of a new board of health. A health code for that city has been drawn up after considerable labor by a special commission, with Dr. Emmanuel P. Lachapelle as chairman. The board of health will consist of the mayor and four aldermen, to hold office for two years. The new health code will provide for the complete abolition of all cesspools throughout the city and of all dark rooms in dwellings. Five hundred cubic feet of air space for each person and 50 square feet per head in houses will be another requirement. Schools and industrial establishments will also come in for regulation, employees to be given 400 cubic feet of air space. This means the inspection of industrial establishments.

Hospital News.—For a new private pavilion for the Royal Victoria Hospital, Montreal, a few thousand dollars has been collected. Mr. J. K. L. Ross will bear the balance of the cost, between $250,000 and $300,000, as a tribute to the memory of his late father, Mr. James Ross. Drs. Walter W. Chipman and George E. Armstrong, feeling the need for the pavilion, had each contributed $1,000. The new wing will be located immediately behind the main structure, but a separate unit. it will have accommodation for about 150 patients.——The Ontario government has introduced a bill into the legislature of that province to enable Toronto to establish a detention home for insane persons. It will incorporate the agreement between the Toronto General Hospital, the City Council and the Ontario government. It will also provide that in Ontario cities of over 100,000 population, reception homes may be provided for on the authority of the governor-in-council, plans and sites selected to be subject to the approval of the government. These hospitals will be under the control of the department of the government having to do with all hospital administration, and the cost of maintenance other than that provided by municipalities to be borne by the government.

Workmen's Compensation in Ontario.—In the bill now before the Ontario legislature to provide for workmen's compensation, no provision is made for the payment to physicians for services rendered to employees suffering injury. The physician will simply have to look to the injured one for payment. The Academy of Medicine, Toronto, and the Ontario Medical Council do not consider this fair to the medical profession, nor even to the working man, and have accordingly suggested certain amendments to the bill. The act will be administered under a commission of three, which will appoint a chief medical officer, medical referee, a secretary and others. The accident fund to provide for compensation will be raised by a levy on a percentage basis of wages paid, and certain industries are classified into distinct sections. The bill is modeled more after the German than the British law, and the industrial diseases mentioned for compensation are the same as originally set out in the British act. While the working classes are possibly just as good pay from the physicians' standpoint as other classes of the community, it seems considerably unfair that an act in the interests of the working man primarily should make him responsible for medical services rendered in case of accidents occurring while he was working for another man or employer.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, March 13, 1914.

State Provision for the Blind

In the United Kingdom there are between 32,000 and 34,000 blind persons. Of these it is estimated that 5,000 are in workhouses, 5,000 are receiving parish relief and 7,000 are begging their bread. Only 3,000 are employed in voluntary institutions, and there the wages earned average only about $2.50 per week. About 5,800 receive a small pension averaging not more than $50 per year from charitable organizations. The subject of the care of the blind has been under discussion in the House of Commons. A labor member, Mr. Wardle, brought forward a motion that "the present system of voluntary effort in aid of blind people of this country does

not adequately meet their necessities and that the state should make provision by which capable blind people may be made industrially self-supporting and the incapable and infirm be maintained in a proper and humane manner." Another member pointed out that about 5,000 of the blind would not have been so if they had received proper attention at birth. On behalf of the government Mr. J. H. Lewis, parliamentary secretary to the Local Government Board, said that although blindness was diminishing this was no reason for not taking action. Indeed it was an argument for beginning action because the matter had now assumed more manageable proportions. The state had already done something in ensuring the elementary education of blind children, and further steps were about to be taken. With regard to secondary or technical education, the voluntary institutions had done their best with the limited means at their disposal. Private charity had been poured out bountifully for the blind, but admirable as the work had been, there was more to be done. The time had arrived when a forward step would be taken, and the government would immediately appoint a committee to consider the question.

The Royal Commission on Venereal Diseases

At the twentieth meeting of the Royal Commission on Venereal Diseases, Mr. C. A. Ballance, chief surgeon to the Metropolitan police and surgeon to St. Thomas' Hospital, said that the amount of venereal disease among the police was slight. Formerly policemen reporting themselves sick from venereal diseases were looked on as defaulters and their pay was stopped. In 1911 the system was entirely changed and venereal disease was treated like ordinary sickness. The result had been that most of those affected have reported themselves sick to the divisional surgeon and have not tried to keep it secret. As many patients as can be accommodated are sent to the military hospital, but if that hospital is unable to receive them they are sent to the nearest general hospital. The change of system had the good effect of securing early treatment. From his experience at St. Thomas' Hospital Mr. Ballance thought that the number of serious cases of venereal disease were diminishing. This he attributed to early treatment. He much doubted whether the actual prevalence had diminished.

At the twenty-first meeting Dr. Brian O'Brien, medical inspector of the Local Government Board for Ireland, said that his impression was that there was a decline of venereal disease in the country districts and small towns of Ireland. Venereal disease, especially syphilis, was almost non-existent in the rural portions of Ireland, and uncommon in the smaller towns. In Dublin there was a special prevalence, and among the causes contributing to this he mentioned poverty, bad housing and the fact that Dublin is the refuge of persons from the greater part of Ireland who are doing no good for themselves. There was also some prevalence of the disease in Belfast, but to a much less extent than in Dublin. He considered that the treatment of the disease in Ireland was at present very inadequate. His two main recommendations were that means should be provided for improving diagnosis and that institutional treatment should be subsidized. Outpatient departments of general hospitals should be open in the evening. He was opposed to notification of venereal disease. He did not think that the medical profession would be willing to notify, and if they did fewer persons would go to physicians for treatment.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, March 13, 1914.

Compulsory Antityphoid Vaccination and Medical Responsibility

I have already mentioned (THE JOURNAL, March 10, 1914, p. 139) the passage in the Senate of a bill to make antityphoid vaccination compulsory in the active army. This bill raises an important problem of the professional responsibility of physicians, which was discussed at the last session of the Société de médecine légale. It is not easy to determine the contra-indications to antityphoid vaccination in the case of recruits whose past history and organic defects are unknown to the regimental physicians. Every year the recruits with defective constitutions are eliminated a few at a time, the annual number being between 7,000 and 8,000. It is quite possible that several of these men who are sent home for threatened or incipient tuberculosis and who have been vaccinated against typhoid before their dismissal, will attribute the development of their disease to this vaccination and will bring suit for damages, which may be awarded them. In such a case who will be responsible—the physician who performed the operation or the government which required it? The bill as passed by the senate requires all the soldiers to be vaccinated without exception. The society therefore passed a resolution that some exceptions should be made in the law.

Rubber Grafts

As a general thing, the insertion of foreign bodies in the human organism as a substitute for lost tissue has not hitherto been very successful. Fragments of bone and ivory are finally absorbed after having served as supports for the regeneration of new tissue. Such substances as silver become encysted or eliminated by the suppuration which they cause. Rubber, which has the advantage of being tolerated by living tissues without becoming absorbed or encysted, has been employed by Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, to repair loss of tissue and to prevent undesirable adhesions. Victor Henri has shown that the latex or sap of the rubber-tree is an emulsion of fine grains, measuring from 0.05 to 2 microns, bearing a negative electric charge. It acts like a negative colloid and therein resembles the colloids of blood-serum which are likewise electronegative. The rubber used by Delbet is produced by evaporating the sap of the rubber-tree and adding 2.5 per cent. of sulphur. Does this preserve the properties of the living sap? It may be assumed that it does, since all serotherapy is based on the fact that certain biologic properties of blood-serum are preserved *in vitro*. The molecular equilibrium of rubber, like that of living substances, is maintained better while it is in use. Rubber of which the elastic properties are frequently brought into play lasts longer than that which is unused. Such qualities are intermediate in some degree between those of inert matter and those of living matter.

Delbet asks if these "paravital" properties of rubber are not parallel with those of animal tissues. Daily experience proves that human tissues undergo no appreciable reaction in contact with rubber drains. Tuffier and Carrel have shown that the circulating blood does not cooperate in contact with a sheet of rubber. Delbet found that rubber remained intact for a long time in the tissues. In 1886 he found in a maxillary cyst a rubber drain which had been forgotten by Chassaignac more than twenty years before and which was intact. In the physicochemical conditions furnished by living tissues, therefore, rubber lasts much longer than on a shelf and thus shows a certain resemblance to the colloids. Delbet used rubber grafts in two cases which he reported to the Académie de médecine. In the first patient, who had an adhesion of the tendon of the extensor longus, Delbet, after breaking up the adhesion, placed a thin sheet of rubber between the bone and the tendon, which resumed its functions. The operation was performed more than eight months ago and the rubber graft has given no trouble. Another still more interesting case was of an enormous hernia of the large intestine. Delbet repaired the abdominal wall with a thick sheet of rubber 7 by 3 cm. Reunion was accomplished without the least sign of irritation. The operation had been performed only a few days before the report. The patient suffered no discomfort; the abdominal wall was solid.

Fieschi used rubber in a different way. He employed a very porous tissue (rubber sponge) in order to obtain incorporation by penetration of the granulations into the areolae. This method may be very interesting. Delbet has begun experiments to learn if the elasticity of rubber grafts cannot be utilized. Whether this be so or not, he believes that rubber grafts are destined to render greater service in surgery.

Deaths from Salvarsan

Drs. Morel and Mouriquand of Lyons, who have been investigating the organotropism of salvarsan for three years, have found two classes of reactions of the organism. In animals which tolerate the injection well, the urinary elimination of arsenic is rapid and intense. No organotropism is found by searching for arsenic in the viscera of an animal killed three or four days after injection. Animals belonging to a second and smaller class rapidly succumb to intoxication because of the almost total retention of arsenic, principally at the level of the liver (hepatotropism). The practical conclusion to be drawn from these researches is that before undergoing the Ehrlich treatment patients should have a test injection of a very small dose, and arsenic should be sought in the urine. If the elimination of arsenic is absent, slight or delayed, the second injection should be postponed or made with great caution.

Marriages

NEWTON EDWARD WAYSON, M.D., San Francisco, to Miss Anne T. Ewing of Portland, Ore., at San Francisco, March 14.

MARSHALL TRIPLETT HOOVER, M.D., Palmer, W. Va., to Miss Emma Boggs of Bois, W. Va., in Clarksburg, W. Va., March 9.

ALFRED E. RIVES, M.D., to Miss Helen Lawrence, both of East St. Louis, Ill., at Louisville, Ky., March 2.

IVAN EARNEST BRENNER, M.D., Winchester, Ind., to Miss Anna Marlatt of Connersville, Ind., March 3.

LUNSFORD M. THOMPSON, M.D., Reardan, Wash., to Miss A. Winnington of Spokane, Wash., March 17.

WILLIAM HENRY GILBERT, M.D., to Mrs. Jessie Shawler, both of Evansville, Ind., in St. Louis, March 20.

ABRAM L. SHERICK, M.D., Ashland, Ohio, to Miss Elsie Cross of Lima, Ohio, March 19.

Deaths

Egbert Le Fevre, M.D. dean of University and Bellevue Hospital Medical College, New York City; died March 30, from scarlet fever, aged 55. He was born in Raritan, N. J., October 29, 1858, received his A.B., A.M. and Sc.D. degrees from Rutgers College, and was graduated from the University of the City of New York Medical Department in 1883. He served two years as intern in Bellevue Hospital, and in 1888 became clinical lecturer on practical medicine in his Alma Mater. In 1890 he was made professor of clinical medicine; in 1895, adjunct professor of medicine, and since 1898 has been associate professor of therapeutics, professor of clinical medicine, and dean of the faculty of the united colleges. He was visiting physician to the City Hospital in 1894 and 1895, and to Bellevue Hospital and St. Luke's Hospital since 1898; and was also consulting physician to Beth Israel Hospital. He was a Fellow of the American Medical Association and the New York Academy of Medicine, and a member of the American Climatological Association, and National Association for the Study and Prevention of Tuberculosis. He was also the author of a standard work on "Physical Diagnosis," which appeared in 1902.

George McNaughton, M.D. Bellevue Hospital Medical College, 1878; a Fellow of the American Medical Association; for five terms president of the Medical Society of the County of Kings; a fellow of the American Gynecological Society and the New York Academy of Medicine; clinical professor of gynecology in Long Island College Hospital; visiting gynecologist to Long Island College, Kings County, Eastern District and Brooklyn hospitals; consulting gynecologist to the Long Island State Hospital, Jewish Hospital and Central Dispensary; died at his home in Brooklyn, March 17, from heart disease, aged 57.

Daniel B. Cornell, M.D. Detroit College of Medicine, 1889; a Fellow of the American Medical Association; professor of diseases of the eye, ear, nose and throat in the Michigan College of Medicine and Surgery, Detroit; one of the founders of the Saginaw Valley Medical College; oculist and aurist to the Women's Hospital, Saginaw; district examiner as to sight, hearing and color perception for the Cincinnati, Hamilton and Dayton and Pere Marquette systems; died at his home in Saginaw, March 21, from septicemia, due to an ulcerated tooth, aged 59.

John Laing Leal, M.D. College of Physicians and Surgeons, New York City, 1884; a member of the Medical Society of New Jersey; president of the New Jersey State Sanitary Association; consulting surgeon to the Paterson Hospital; examiner in hygiene in Rutgers College; for many years president of the Paterson Board of Health, and sanitary adviser of the East Jersey Water Company; an authority on water-supply; died in St. Joseph's Hospital, Paterson, March 13, from diabetes, aged 55.

Henry Sykes, M.D. University of Pennsylvania, Philadelphia, 1884; at one time a member of the staff of the State Hospital for the Insane, Norristown, Pa.; for eighteen years chief resident physician of the Episcopal Hospital, Philadelphia; and for eight years occupying a similar position at the Philadelphia General Hospital; died March 19 in the Jefferson Hospital, Philadelphia, from cancer of the mouth, for which operation had been performed without success, aged 52.

William Coe Monroe, M.D. Bellevue Hospital Medical College, 1876; a Fellow of the American Medical Association; and first president of the Woonsocket District (R. I.) Medical Association; health officer of Woonsocket since 1900; for eight years coroner and medical examiner and a member of the school committee; a member of the staff of the Woonsocket Hospital, and for several years chief of staff; died at his home, March 11, from heart disease, aged 64.

William Perry Weaver, M.D. Cincinnati College of Medicine and Surgery, 1871; a Fellow of the American Medical Association; a member of the Board of Health of Miamisburg, Ohio; district surgeon of the Big Four system, and local surgeon for the Cincinnati, Hamilton and Dayton Railway; died at his home, March 8, from cerebral hemorrhage, aged 62.

George Franklin Roberts, M.D. Rush Medical College, 1872; New York Homeopathic Medical College, 1881; a Fellow of the American Medical Association; consulting physician to Asbury Hospital, Minneapolis; professor of gynecology in the University of Minnesota from 1895 to 1904; died at his home in Minneapolis, March 21, from pneumonia, aged 65.

George Oakley Welshman, M.D. College of Physicians and Surgeons, New York City, 1895; of Newark, N. J.; a Fellow of the American Medical Association; while crossing the tracks of the Delaware, Lackawanna and Western Railroad at East Orange, N. J., in his automobile, March 17, was struck by an express train and instantly killed.

Thomas Wesley Stumm, M.D. Rush Medical College, 1901; of St. Paul, Minn.; a Fellow of the American Medical Association, and once president of the Ramsey County Medical Association; a member of the staffs of St. Luke's, St. Joseph's and the St. Paul City Hospital; died in Vienna, Austria, March 20, from heart disease, aged 42.

Percy Shields, M.D. Miami Medical College, Cincinnati, 1897; a Fellow of the American Medical Association; professor of medicine on the clinical staff of his Alma Mater; a specialist on anesthesia; a member of the staff of the Cincinnati City Hospital and Jewish Hospital; died at his home in Cincinnati, March 9, aged 39.

Charles E. Thayer, M.D. Northwestern University Medical College, Chicago, 1883; Chicago Homeopathic Medical College, 1886; a Fellow of the American Medical Association; and president of the Green Lake County (Wis.) Medical Society; of Markesan; died in Fond du Lac, March 14, from heart disease, aged 54.

Joseph Lowrie Ingle, M.D. New York University, New York City, 1871; a member of the Medical and Chirurgical Faculty of Maryland; formerly physician-in-charge of Sydenham Hospital, Baltimore; died at his home in that city, March 20, from angina pectoris, aged 67.

Abram A. Sulcer, M.D. Rush Medical College, 1866; for many years a practitioner of Los Angeles; aged 75; died at his home in Riverside, March 14, as the result of injuries received a few hours before in a collision between motor-cars on the Box Springs grade.

Francis S. Kennedy, M.D. New York University, New York City, 1891; of Brooklyn, N. Y.; for many years connected with the Seventh Infantry, N. G. N. Y., and later a resident of Toronto, Ont.; died in the Brooklyn Hospital, March 17, aged 58.

Albert R. Fellows (license, Maine, 1895); chairman of the health board of Winterport, Maine, and local surgeon for the Winterport Railroad; for forty years a practitioner; died while making a professional call in Bucksport Center, March 5, aged 62.

James Nicholas Butler, M.D. Bellevue Hospital Medical College, 1888; one of the founders and first dean of the Medical Department of Fordham University; for many years a member of the visiting staff of St. Francis' Hospital; died at his home in New York City, March 14, from heart disease, aged 53.

Jesse J. Stringer, M.D. Chattanooga, Tenn., Medical College, 1905; a member of the Mississippi State Medical Association; and a practitioner of Oak Vale; died in that place, March 14, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 42.

John Joseph Loftus, M.D. Medico-Chirurgical College of Philadelphia, 1903; formerly of Denver, Colo., but for the last two years a practitioner of Scranton, Pa.; died in St. Vincent's Hospital, Denver, March 10, from pneumonia, aged 39.

Woodward David Carter, M.D. Hahnemann Medical College, Philadelphia, 1894; for several years instructor in gynecology in his Alma Mater; died at his home in Philadelphia, March 17, from influenza, aged 46.

Samuel Perry, M.D. Medical College of the State of South Carolina, Charleston, 1854; a member of the Medical Association of the State of Alabama; a Confederate veteran; for many years a practitioner of Birmingham; died at the home of his daughter in Marion, Ala., March 18, aged 80.

Frank D. Stolzenbach, M.D. Hahnemann Medical College, Philadelphia, 1904; aged 35; a Fellow of the American Medical Association; of Pittsburgh; was found dead in a farmhouse near Wellesley, Mass., March 13, from the effects of a gunshot wound of the heart.

James T. Cushenbury, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1875; formerly of Medicine Lodge, Kan; a physician and banker of Wann, Okla.; died in a hospital in Wichita, Kan., March 11, after a surgical operation, aged 64.

Thomas A. Allen, M.D. Medical College of the State of South Carolina, Charleston, 1853; one of the oldest residents of Hendersonville, N. C.; died at the home of his daughter in South Nashville, Tenn., March 11, from pneumonia, aged 89.

George W. Milligan, M.D. Berkshire Medical College, Pittsfield, Mass., 1852; a practitioner of Sparta, Wis., for more than sixty years; once physician of Monroe County; died at his home in Sparta, March 15, from senile debility, aged 88.

John T. Jones, M.D. Tulane University, New Orleans, 1880; for twenty years physician to the stevedores', long-shoremen's and screwmen's organizations of New Orleans; died at the home of his brother in that city, March 11, aged 53.

R. H. Baylor (license, Tenn., 1889); a practitioner for more than fifty years; health officer of Houston County; a surgeon in the Confederate service during the Civil War; died at his home in Erie, March 9, from heart disease, aged 78.

Daniel Simmons, M.D. New York Homeopathic College, New York City, 1875; a veteran of the Civil War; chief of the consulting staff of the Cumberland Street Hospital, Brooklyn; died at his home in that city, March 18, aged 70.

William V. Loftus, M.D. Missouri Medical College, St. Louis, 1879; a member of the Missouri State Medical Association; for several years editor of a medical journal in Kansas City; died at his home in St. Louis, March 13, aged 64.

William Oliver Howard, M.D. Atlanta (Ga.) School of Medicine, 1908; a member of the Medical Association of Georgia; of Morgan; died at the Williams Sanatorium, Macon, March 6, after an operation for appendicitis, aged 31.

Christopher J. Miller, M.D. Western Reserve University, Cleveland, 1864; for many years a practitioner of Marion, Ohio; died in the Odd Fellows' Home in Springfield, Ohio, March 5, from senile debility, aged 80.

Charles Allen Smith, M.D. Barnes Medical College, St. Louis, 1897; formerly a practitioner of East St. Louis and De Land, Ill.; died in the West Side Hospital, Chicago, March 8, from cirrhosis of the liver, aged 78.

Abraham R. Shank, M.D. University of Pennsylvania, Philadelphia, 1867; a member of the Medical Society of the State of Pennsylvania; died at his home in Clear Spring, March 13, from pneumonia, aged 71.

Chester Lymann Hodgkins, M.D. Georgetown University, Washington, D. C., 1900; for two years a sanitary engineer in Ecuador, S. A.; died at his home in Park Falls, Wis., March 15, aged 43.

Samuel Schaie, M.D. University of Berlin, Germany, 1875; a member of the German Medical Society of New York; died at his home in New York City, March 19, from heart disease, aged 62.

Frank A. Weaver, M.D. Michigan College of Medicine, Detroit, 1881; a member of the Michigan State Medical Society; of Charlotte; died in a hospital at Oakland, Cal., March 6.

Herbert Bacon, M.D. Western Reserve University, Cleveland, Ohio, 1897; a nearly blind practitioner of Tiffin, Ohio; was accidentally drowned near Bloomville, Ohio, March 13, aged 38.

James A. Stevens, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1867; a surgeon of volunteers during the Civil War; died at his home in Eldon, Mo., about March 5, aged 70.

Henry C. Sawyer, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a member of the Illinois State Medical Society; died at his home in Cornell, February 24, aged 68.

David Cabell Burks, M.D. Medical College of Virginia, Richmond, 1904; one of the proprietors of the St. Charles' Hospital, Roanoke, Va.; died in that institution, March 16, aged 43.

Nelson Bradley Coffman, M.D. Miami Medical College, Cincinnati, 1883; of Healdsburg, Cal.; died in St. Winifred's Hospital, San Francisco, March 5, from cerebral hemorrhage.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THEOBROMIN SODIUM SALICYLATE VERSUS "DIURETIN": THE ECONOMICAL ASPECT

[Contribution from the Chemical Laboratory of the American Medical Association]

W. A. Puckner and Paul N. Leech

The following inquiry is from Dr. Reid Hunt, recently appointed professor of pharmacology at Harvard Medical School:

"Have you ever made an examination of the theobromin sodium salicylates on the market to determine if they are identical with 'Diuretin'? The description of theobromin sodium salicylate in New and Nonofficial Remedies agrees with the statements as to the composition of Diuretin, but I wondered if, at times at least, the theobromin sodium salicylate on the market might be a simple mixture of theobromin and sodium salicylate just as the Caffeinae Sodio-Salicylas, N. F., seems to be a simple mixture. Diuretin is quoted in current price-lists at $1.75 an ounce, whereas the price of theobromin sodium salicylate is only 35 cents an ounce. Many hospitals use diuretin, and both physicians and students often have only hazy ideas as to what it is. If the preparations of theobromin sodium salicylate now on the market are identical with Diuretin they should certainly be used, not only because they are less expensive, but because the descriptive name will continually remind the physicians of what they are using."

Theobromin for some time has been regarded as a valuable therapeutic agent. The obstacle to its use has been its insolubility and the consequent uncertainty of the degree of its absorption. For this reason a soluble salt of theobromin, theobromin sodium salicylate, first introduced and advertised under the proprietary name "Diuretin," has come to be used to a considerable extent.

Theobromin sodium salicylate—also called theobromin and sodium salicylate—is prepared by interaction, in molecular proportions, of theobromin, sodium hydroxid and sodium salicylate, the theobromin first being treated with sodium hydroxid in the presence of a suitable solvent, then the sodium salicylate added and the whole brought to dryness. The soluble compound which is formed is generally considered to be a double salt of theobromin sodium and sodium salicylate.

Theobromin sodium salicylate is described in New and Nonofficial Remedies and in several foreign pharmacopeias. It is also to be described in the forthcoming United States Pharmacopeia.

Although the product is not controlled by patents of any kind, and although it is offered for sale under its chemical name by the leading chemical manufacturers at from 35 to 45 cents per ounce, the proprietary product, Diuretin, sells for $1.75 an ounce. This is probably because the manufacturers think that those who have been using it under its chemically non-descriptive but therapeutically suggestive title, Diuretin, will remain ignorant of the fact that the same product is on the market under its chemical name. In view of these conditions, emphasized by Dr. Hunt's letter, it was deemed important to examine the market-supply of theobromin sodium salicylate and to compare the several specimens with the proprietary brand Diuretin.

The following specimens, purchased in 1-ounce original packages, were examined:

Diuretin, "Knoll," Knoll & Co.

Theobromine and Sodium Salicylate, Mallinckrodt Chemical Works.

Theobromine and Sodium Salicylate, Merck & Co.

Theobromine and Sodium Salicylate Powder, Powers-Weightman-Rosengarten Co.

Theobromine and Sodium Salicylate, "Roche," Hoffmann-La Roche Chemical Works.

Theobromine and Sodium Salicylate, Squibb, E. R. Squibb & Sons.

The theobromin content prescribed for theobromin sodium salicylate by the various standards ranges from 45 to 50 per cent., that of New and Nonofficial Remedies being the highest. A requirement of not less than 46.5 per cent. theobromin in the dried powder has been proposed for the new U. S. Pharmacopeia.

The methods of quantitative estimation laid down by the various authorities are all very similar and consist, in the main, of a determination of water, of the sodium hydroxid, free and in combination with theobromin, and of the theobromin itself. For the theobromin estimation the following method was employed:

A weighed sample (about 2 gm.) which had previously been dried, under slightly reduced pressure, over sulphuric acid, to constant weight, was dissolved in five times its weight of warm water. Two drops of phenolphthalein were added, and the solution titrated with normal hydrochloric acid. To the neutral solution, 1 drop of 10 per cent. ammonium hydroxid solution was added, and the mixture allowed to stand, with occasional stirring, for three and one-half hours at the temperature of 15 C. The precipitate was filtered on a weighed Gooch crucible, washed with just ten times the weight (of the original sample taken) of water (temperature 15 C.) and the precipitate dried at from 100 to 104. To the weight obtained, a correction factor (proved satisfactory by quantitative extraction experiments on the filtrate) of 0.13 gm. was added, for every 2 grams of the original sample taken.

The full details of the examination will be published in the 1914 Reports of the A. M. A. Chemical Laboratory. The results of the examination have been abstracted and are compiled in the accompanying table:

SUMMARY OF ANALYSIS

	Physical Appearance*	Gm. in 1-Ounce Bottle	Price, per Ounce	Moisture, Per Cent.	Alkalin. as NaOH on Dry Powder† Per Cent.	Theobrom. in Dry Powder† Per Cent.	Theobromin in Orig. Specimen† Per Cent.
Diuretin	3 Pure White	28.5	$1.75	0.01	10.44	48.61	48.61
Theo. Sod. Sal. M. C. W.	3 Pure White	27.5	0.35	1.89	9.95	46.11	45.24
Theo. Sod. Sal. Merck	1 Pure White	29.0	0.35	0.48	10.38	47.87	47.58
Theo. Sod. Sal. P. W. R. Co.	2 Pure White	29.1	0.35	2.46	10.30	47.57	46.39
Theo. Sod. Sal. Roche	3 Pink	28.6	0.35	2.27	9.92	49.05	47.92
Theo. Sod. Sal. Squibb	1 Pure White	26.8	0.45	0.39	9.97	46.82	46.63

* In this column, 1, 2 and 3 denote the following:
1. Quite crystalline, under microscope.
2. Fairly crystalline, under microscope.
3. Not crystalline, under microscope.

† Average of determinations.

While the results show some variation in the moisture content and also in the actual theobromin content of the dried specimens, the variation is unimportant. The products in their original state (undried), as compared in relation to the theobromin content (the highest percentage of theobromin being 48.61, the lowest 45.24), reveals a variation of only about 3 per cent.—a variation which is negligible in the case of drugs such as theobromin.

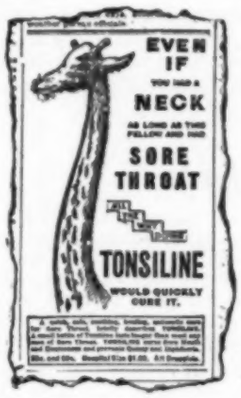
From the preceding investigation, it is concluded that (1) practically there is no difference between the non-proprietary brands of "theobromin sodium salicylate" and "Diuretin"; (2) the several specimens examined were not simple mixtures of "theobromin" and "sodium salicylate"; (3) essentially all the brands complied with the standards laid down and can be rated as satisfactory; (4) "Diuretin," though sold at an exorbitant price, is not superior to the product supplied under the descriptive term "theobromin sodium salicylate," and (5) "Diuretin" sells wholesale for $1.75 an ounce, against 35 cents for the "theobromin sodium salicylate," and therefore its employment cannot be interpreted otherwise than as a useless and unnecessary expense.

TONSILINE

If we are to believe the advertisements — which we are not —"Tonsiline quickly cures sore throat." No such untruth appears on the label of Tonsiline, for lying on the label is expensive nowadays.

"We make no wild claims. We would be very sorry to make a single statement not the exact truth."

This from the bottle. Yet we read in the newspapers — the veracity of whose statements is not subject to the jurisdiction of the Food and Drugs Act—that Tonsiline is:



"A quick, safe, soothing, healing antiseptic cure for sore throat."

"Tonsiline cures sore mouth and hoarseness."

"Tonsiline prevents diphtheria."

"Tonsiline is the one and only sore throat cure which is sold over a large part of the United States."

Tonsiline is sold by the Tonsiline Company, Canton, Ohio. To determine the nature of this "one and only sore throat cure which is sold over a large part of the United States," it was analyzed in the Association's laboratory. Here is what the chemist found:

CHEMIST'S REPORT

"Three original bottles of Tonsiline were purchased and the contents subjected to examination. The bottles contained a yellow liquid, with an odor resembling that of Tincture of Iron Chlorid, U. S. P., and having an astringent taste. The specific gravity was 1.0418 at 15.6 C. If the solution was cooled below 12 C. crystals of potassium chlorate were formed. Qualitatively the presence of the following was demonstrated: Iron (ferric), potassium, chlorate, chlorid and alcohol. The quantitative determinations gave the following:

Alcohol (by volume)	6.3 per cent.
Iron	0.37 per cent.
Potassium	1.31 per cent.

"From the iron and potassium contents it would be calculated that Tonsiline contains 1.60 per cent. ferric chlorid ($FeCl_3$) and 3.89 per cent. potassium chlorate ($KClO_3$). The amount of ferric chlorid administered in two teaspoonfuls, or 8 c.c., which is the dosage, is essentially the same as that administered in 1-2 c.c. of tincture of ferric chlorid U. S. P., and which is the official dose. In other words Tonsiline is 1/16 as strong as tincture ferric chlorid.

From the chemist's report it is evident that a product having essentially the same composition as Tonsiline would be:

Tincture of chlorid of iron (ferric chlorid), U. S. P.	1 ounce
Alcohol	1 ounce
Potassium chlorate	280 grains
Water, sufficient to make	1 pint

It is not necessary to tell physicians that Tonsiline never cured sore throat nor prevented diphtheria. The stuff contains drugs whose use for these purposes, by the medical profession, is being abandoned. It is the old story of exploiting the public by the use of discarded theories that have been revamped for commercial purposes. The risk of poisoning from the use of potassium chlorate, while well known to the medical profession, is still but little appreciated by the public. The dangers of the indiscriminate use of a "patent medicine" containing, as Tonsiline does, a saturated solution of chlorate of potash by individuals who may be suffering from kidney disease, will be evident to every physician, but not to the layman.

Summed up: Tonsiline is both inefficient and dangerous.

GOMENCL

A correspondent sends some advertising matter on Gomenol and calls attention to the number of diseases for which the preparation is recommended:

Gomenol is apparently a volatile oil. It is a proprietary said to come from France, and to be prepared from a species of cajuput (*Melaleuca viridiflora*, Gaertn.). This plant is closely related to the cajuput tree or swamp tea-tree (*Melaleuca leucodendron*, Linné) from which the official oil of cajuput is obtained. The oils from these two plants are very similar in composition and presumably in therapeutic properties. The oil of the first-named plant appears not to be marketed except in the form of the proprietary, Gomenol. It probably has no advantage over the official oil of cajuput while in the form of Gomenol it costs about four times as much. The following are some of the claims made for Gomenol in the advertising circulars. They need no comment.

"A real specific for suppurations and catarrh. . . . It immunizes tissues, excites their vitality and favors the formation of new cells. . . .

"The least trace of Gomenol prevents the growth *in vitro* of the streptococcus, the tuberculosis bacillus and the gonococcus."

Correspondence

Flexner's Book on "Prostitution in Europe."

To the Editor:—It is reasonable to presume that the medical aspect of the social hygiene movement will be dealt with, or at least directed by, the high-minded physicians of the world. As we realize the extreme prevalence of the venereal diseases and their serious consequences, the aspect of prevention is bound to force itself on our attention, just as it has in other contagious diseases. In spite of the fact that facilities for treatment of these diseases are absolutely inadequate, little is said about it, even in the medical press; and when we come to consider prostitution, which all admit is the cause of these diseases, few physicians have cared to express any opinion publicly. First, because most physicians, like most lay people, consider the present state of things an unavoidable evil, if an evil at all. Those doctors who have expressed opinions on the subject have generally taken the position that we ought to follow the policy of Continental Europe, namely, the policy of segregation, registration, examination and, if necessary, even temporary detention of infected prostitutes. Although all the vice reports of this country, based on exhaustive study, condemn segregation, the feeling still prevails that we have much to learn from European experience in dealing with prostitution and checking venereal diseases. As a matter of fact, some students of this problem have long been convinced that European methods and policies have by no means achieved the success with which they are often credited. They have doubted that regulation regulates, that examination has had any substantial effect in protecting the patrons of prostitution, or that the police are the proper agents to carry on the supervision and regulation deemed necessary. But they have been challenged so frequently by the adherents of the so-called European policy that it is fortunate that we have at last in the book of Abraham Flexner, "Prostitution in Europe," a clear, able and convincing exposition of the defects and vices of that system. It is a pleasure to recommend this work to every fair-minded physician who has been in the least disposed to favor regulation and examination. It is not too much to say that it ought radically to change current opinion in regard to the treatment of prostitution.

Among the things established by Mr. Flexner, those which challenge medical attention are chiefly these: The entire system of police inspection and regulation was originally instituted in the interest of public order and external decency; health or sanitation was not thought of. In other words, the system was established merely to prevent the offensive forms of the social evil from flaunting themselves in public places. To-day, however, this has admittedly become secondary or negligible, since public opinion and other forces are relied on, even in Europe, to secure external decency. Regulation and examination, as a health measure, or rather a preventive, was therefore an afterthought. The new system was engrafted on the former and it seemed easier to use the same machinery which already existed, even though it was wholly inadequate to handle the new phase of the matter.

As to the medical examination carried on in various parts of Europe which Mr. Flexner studied, we are not a little surprised to find that few of the great centers of medical learning are applying to these examinations of prostitutes the scientific methods with which we are in the habit of crediting them. In fact, in Paris, for instance, the most casual and perfunctory examinations are made, such as even we in this country would consider worthless. But even in those places, like Berlin, for instance, in which the examinations are carried on carefully and scientifically, the number of prostitutes examined and treated in the hospital provided for such treatment is so small in comparison with the large number of prostitutes in that city that the conclusion is inevitable that the examinations serve very little to diminish venereal disease. Mr. Flexner further concludes that we might just as well give up all attempt at regulation and examination, if the object be the safeguarding of public health.

He does insist, however, as we all do, that repression of prostitution, if carried on honestly and by competent agencies of the government, tends to diminish the supply. He is one of those who do not believe that in prostitution the supply follows the demand. On the contrary, he points out very clearly that *the demand is stimulated in various ways by the supply.*

As to positive suggestions made by Mr. Flexner, they are very similar to those which have been made in our splendid vice reports, namely, that to solve the problem of prostitution we need the aid of the intelligent, conscientious physician as well as that of the sociologist and economist.

RACHELLE S. YARROS, M.D., Chicago.

"The Doctor Can Wait"

To the Editor:—The complaint of Dr. Schreiber (THE JOURNAL, Feb. 21, 1914, p. 633) of the lay point of view that John Doe's debt to the doctor can wait until other debts are paid is just; but Dr. Schreiber does not, to my mind, indicate how and in what direction that point of view is to be changed.

Practically all of us provide better for regular every-day items of expense, like store-bills and rent than for occasional or accidental demands; therefore, when John Doe is unfortunate, Dr. Smith is very apt to be the last creditor paid, if paid at all. Dr. Smith may, indeed, force his collections, or may refuse further service to John Doe, or, like Robin Hood, may even matters up by exacting heavier fees from wealthier patients; but the objections to either plan are, I think, perfectly obvious.

John Doe, a good citizen, doing his fair part in the world's work and rearing good citizens to continue that work, is fairly entitled to demand of society the due guarding of the family health. Dr. Smith has rendered honorable social service to one entitled to social protection and deserves proper recompense at the hands of society. Why, then, should not we Dr. Smiths combine to secure our due compensation from city, county or state instead of waiting, like our English confrères, to have new relations thrust on us, suffering meanwhile from an ever-increasing burden of uncollectable bills?

W. R. TYMMS, M.D., Gig Harbor, Wash.

[COMMENT.—It was Salmon P. Chase, we believe, who coined or invented the startling axiom, "The way to resumption is to resume." The way for physicians to get paid for services rendered, in the same manner as others get paid for services rendered or for goods delivered, is to do as others do—get paid. Physicians are so in the habit of saying that the doctor's bill is always the last one to be paid that they have become accustomed to let the bill run, so that the situation has come

to be considered the necessary condition of affairs. Nothing of the kind! There are doctors who present their bills, as do others in the community, and courteously but firmly demand that they be treated as are the others. In every such case the doctor's bill is paid as soon as any; and, above all—and this, we affirm, is a fact—the doctor who presents his bill and demands payment for his services is more respected than the man who is afraid to present his bill or to demand payment for fear the patient, or the individual responsible, may become angry and get some other doctor.—ED.]

The Blister Treatment of Subacromial Bursitis

To the Editor:—Supplementary to the article on "Subacromial Bursitis" by L. W. Littig (THE JOURNAL, March 21, 1914, p. 907), I wish to call attention to the excellent results of blistering in this malady. In the first instance, there is a striking similarity, pathologically, between subacromial bursitis and tendosynovitis of the extensors at the wrist. Their frequency is about the same, and both are usually caused by the frictional trauma of overuse or by a direct vulnerating force. In the early stages of both I have practically invariably obtained magical relief by the application of a blister. A square inch of fabric "buttered" with ceratum cantharidis U. S. P., or an equal area of a "ready-to-use" plaster is moistened with olive-oil and applied over the inflamed part. It is covered with a dossil of gauze, which is secured by adhesive plaster. The text-books say to remove the blister in from four to six hours, but practically it works out that as soon as the blister has formed, the cushion of serum interposed between the medicament and the underlying dermis automatically inhibits vesication. For this reason I remove the blister the next day and dress with boric-acid ointment spread on surgical lint. Immobilization is now secured. It is astonishing how, in the case of the bursitis, painless abduction, and in the case of the tendosynovitis, crepitation-free tendon-play, rapidly returns. Of course, the bursitis must be properly diagnosed, and when available a roentgenogram should be taken to exclude minor skeletal injuries, for the condition is not always primary, but may be secondary too, for example, tear or arrachement fracture of the greater tuberosity of the humerus. I do not agree that there is liability of a laceration of the tendon of the supraspinatus muscle, but think that a shell of cortex is more often avulsed from the bone by this or one of the other two tendons that insert on this prominence. The blister acts not only by determining the congestion from the part, but also trophically through the cutaneous nerve which, in the case of the shoulder, is a branch of the same nerve that supplies the deltoid, the bursa and the joint—the circumflex. P. G. SKILLERN, JR., M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RECIPROCITY UNDER THE NEW CALIFORNIA PRACTICE ACT

To the Editor:—Please give full particulars regarding the provision for reciprocity in the new California practice act. P. C. N.

ANSWER.—Holders of certificates to practice medicine issued since Aug. 1, 1901, by a medical examining board or by any other board or officer authorized by law to issue a certificate entitling the holder thereof to practice medicine and surgery either in the District of Columbia or any state or territory in the United States, will be granted a certificate to practice medicine in the state of California on payment of a $50 fee, provided that the requirements of the medical college from which he graduated and the board which issued such certificate shall not have been in any degree or particular less than those required for issuance of a certificate in the state of California at that time. The applicant must furnish from the board which issued such certificate satisfactory evidence that the requirements of the college or board met the above-mentioned requirements of this state. Licentiates prior to Aug. 1, 1901, who have practiced medicine and surgery in any other state and who desire to register in this state, shall file application on a blank furnished by the board showing: (1) full name of the applicant; (2) all institutions in which he studied and the period of study, and all institutions at which he graduated; (3) statement of certificate or certificates to practice medicine and surgery which may have been issued to him, together with date and description of the same; (4) statement of all places in which applicant has practiced medicine or surgery, and (5) such other general information as to his past practice as may be required by the said board. The board shall then investigate and if acceptable shall afford him a practical, clinical, oral examination not less than six months subsequent to the date of application.

This is not really "reciprocity" but the endorsement of licenses issued by other state. Reciprocal relations with other states, therefore, are unnecessary.

AN UNSUITABLE PRESCRIPTION

To the Editor:—Please criticize the following prescription:

℞ Ac. hydrocyanic dil. ..... m xx
Bismuthal ..... ʒ ii
Magnesiae lactis ..... ʒ ii
Aquae menthae piperitae
Elix. lactopeptin .....āā ʒ ii
M. S. ℥ before meals. A. L. W.

ANSWER.—This is a typical example of what a prescription should not be; it is an evidence of lack of knowledge on the part of the prescriber as to what he is prescribing. It contains two proprietaries, one of which contains nine ingredients, and the other, six. Both are said to contain pepsin, hydrochloric acid and lactic acid. The mixture will do neither good nor harm.

In the treatment of diseases of the stomach the use of simple remedies designed to meet the most prominent indication is especially to be commended. In this case the various alkalies have other properties than that of antacids and each should be used only when indicated—to meet a special purpose. Thus, bismuth compounds would be suitable to hyperacidity accompanied by diarrhea, while magnesia is suitable to those cases characterized by constipation. In the prescription presented they would tend to neutralize each other so that the mixture could not well have been intended for a special case.

BOOKS AND PERIODICALS ON TUBERCULOSIS

To the Editor:—Please give a list of about twenty-five books that you can recommend for a library in a tuberculosis sanatorium for the use of the doctors in charge.

ROSA HIBBARD, Kansas City, Mo.

ANSWER.—The following list is offered as a suggestion:

Tr. Nat. Assn. for the Study and Prevention of Tuberculosis, 1905 to date.
Beiträge zur Klinik der Tuberkulose. Würzburg, Curt Kabitzsch, 16 marks a year.
Cornet, G.: Tuberculosis and Acute General Miliary Tuberculosis (Nothnagel's Practice), Philadelphia, W. B. Saunders Company, $5.
Cheyne: Tuberculous Diseases of the Joints, New York, Oxford University Press, $5.50.
Klebs: Tuberculosis, New York, D. Appleton & Co., $6.
Bonny: Pulmonary Tuberculosis and Its Complications, Philadelphia, W. B. Saunders Company, $7.
Knopf: Tuberculosis a Preventable and Curable Disease, New York, Moffat, Yard & Co., $2.
Walters: Open Air or Sanatorium Treatment of Pulmonary Tuberculosis, New York, William Wood & Co., $2.25.
Hillier: Tuberculosis, Its Nature, Prevention and Treatment, New York, Cassell & Co., $1.25.
Hoffman: Mortality from Consumption in Dusty Trades (Labor Bulletins 79 and 82), U. S. Bureau of Labor, 1908, 1909.
Kelynack: Tuberculosis in Infancy and Childhood, New York, William Wood & Co., $4.
Ely: Joint Tuberculosis, New York, William Wood & Co., $2.50.
Burton-Fanning, F. W.: Open-Air Treatment, New York, Paul Hoeber, $1.50.
Maylard: Abdominal Tuberculosis, Philadelphia, P. Blakiston's Son & Co., $4.
Riviere and Morland: Tuberculin Treatment, New York, William Wood & Co., $3.
Thomson: Consumption in General Practice, New York, Oxford University Press, $4.50.
Hamman: Tuberculin in Diagnosis and Treatment, New York, D. Appleton & Co., $3.
Robin: Treatment of Tuberculosis, Philadelphia, P. Blakiston's Son & Co., $7.
Bandelier and Roepke: A Clinical System of Tuberculosis, New York, William Wood & Co., $6.
Bernhard, Oskar: Heliotherapie im Hochgebirge mit besonderer Berücksichtigung der Behandlung der chirurgischen Tuberkulose, Stuttgart, Enke, 1912.

Sahli: Sahli Tuberculin Treatment, Including a Discussion of the Nature and Action of Tuberculin and of Immunity to Tuberculosis, New York, William Wood & Co.

Carl Spengler: Tuberkulose und Syphilis—Arbeiten (1890-1911), Herausgegeben von seinen Schülern und Freunden, Davos, H. Erfurt, 1911.

König: Die spezielle Tuberkulose der Knochen und Gelenke auf Grund von Beobachtungen der Göttingen Klinik, Berlin, Hirschwald.

Bardswell: Diet in Tuberculosis, New York, Oxford University Press, $2.50.

Wilkinson: Treatment of Consumption, New York, The Macmillan Company, $3.

Wolff-Eisner: Ophthalmic and Cutaneous Diagnosis of Tuberculosis, New York, William Wood & Co., $2.75.

Lake: Laryngeal Phthisis, New York, William Wood & Co., $2.

Senn: Tuberculosis of the Bones and Joints, Philadelphia, F. A. Davis Company. $4.

Sabourin, C.: Traitement rationnel de la phthisie, Edition 4, Paris, Masson, 1913.

Petruschky: Grundriss der spezifischen Diagnostik und Therapie der Tuberkulose, Leipsic, Leinerweber, 1913.

Koch: Gesammelte Werke von Robert Koch unter Mitwirkung von Professor Gaffky und Professor Pfuhl, Leipsic, Thieme, 1912.

Tuberculosis Directory, National Association for Study and Prevention of Tuberculosis.

Tuberculosis Hospital and Sanatorium Construction, National Association for Study and Prevention of Tuberculosis, $1.50.

Tuberkulose-Arbeiten aus dem kaiserlichen Gesundheitsamte, Berlin, by Julius Springer.

SODIUM CITRATE IN INFANT-FEEDING

To the Editor:—Please discuss the use of sodium citrate to render delicate the cow's-milk clot in the stomachs of infants. I have not observed that the use of this drug in infant-feeding is well known or widely used. If prolonged use of the drug is harmless, then it should very much simplify infant-feeding, as milk modification would become a measure rather to meet the physical needs of the infant than to render milk more easily digestible. I am not specializing in infant-feeding, but in one case in which a child was given full rich cow's milk in 8-ounce quantities five times a day after six months' breast-feeding, it showed not the first indication of indigestion. This seems to me to be due rather to the sodium citrate, a grain to the ounce, which was added, than merely to an extraordinarily strong digestion. The few clots of cow's milk which were regurgitated were of the same consistency as those of the breast-milk. What are the chances of delayed calcification, rickets, or what not, as the result of using sodium citrate, say up to the end of the first year? J. S. L.

ANSWER.—Sodium citrate will render the curd of cow's milk more delicate. Practically the same result can be obtained by boiling the milk. If the question of feeding infants were merely the question of the casein content of milk, the addition of sodium citrate would be a very simple answer. Recent experiments have gone to prove (Benjamin's *Zeitschrift für Kinderheilkunde*, 1914, x) that the absorption of the protein of cow's milk is about as good whether the large curds occur or not, so that one cannot draw conclusions as to the effect of cow's milk on the child from the presence or absence of large curds in either the vomitus or the stool. The fact probably is that the large curd in either the vomitus or the stool represents rather a non-digestion than an indigestion. So far as we know, sodium citrate given over a long period has no effect on calcification, nor has it any tendency toward the production of rachitis.

ULRICH'S FORMULA

To the Editor:—In THE JOURNAL, Feb. 28, 1914, p. 686, in an article on albuminuria in life-insurance examinations, appears a method for preparing a test solution for albumin according to Ulrich's formula. In this "a saturated and filtered saline solution is acidulated to 2 per cent. acetic acid." Can you tell me how to accomplish this? H. C. J., M.B., Edmonton, Alta.

ANSWER.—A saturated solution is made by continued agitation of the solvent with a little more of the substance than will dissolve, or else by warming the solvent with an excess of the substance for some time and then cooling to the normal temperature under repeated agitation. Salt is only slightly more soluble in hot water than in cold, but if on cooling a precipitate separates, the solution should be filtered. To acidulate to 2 per cent. it is merely necessary to add 2 gm. or 2 c.c. of glacial acetic acid to 100 c.c. of salt solution. This is sufficiently accurate for clinical purposes.

STERILIZATION OF DRESSINGS

To the Editor:—Can gowns, sheets, gauze, etc., be satisfactorily sterilized in an ordinary double-walled Rochester steam sterilizer, and, if so, about what time is necessary to sterilize them properly? H. F. KILBOURN, M.D., Perrinton, Mich.

ANSWER.—Yes; such articles should be sterilized under 10 pounds' pressure for a period of one hour, or in a low-pressure sterilizer, such as the Rochester, for an hour and a half, allowing half an hour for the material to dry.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE PLACE OF MEDICAL MEN IN THE MODERN STATE

Some Interesting Facts from Mr. Lloyd-George

The place and influence of scientifically trained physicians in the modern state was interestingly discussed at a dinner recently given to Christopher Addison, M.D., F.R.C.S., M.P., chairman of the Board of Intermediate Medical Studies of the University of London, and reported at length in the *British Medical Journal*. At the dinner, Dr. Addison's health was proposed by Mr. Lloyd-George, chancellor of the exchequer, who discussed the value of physicians in politics and their influence in the House of Commons, of which Dr. Addison is a member.

THE NATIONAL INSURANCE ACT

Speaking of the national insurance act, with the drafting and passage of which he has been intimately identified, Mr. Lloyd-George said that it was estimated that there were 22,500 general practitioners in Great Britain, and that of these 20,000 were now on the panels, and assisting in the administration of this act. During the past year four and one-half million pounds ($22,500,000) had been paid to physicians for medical services under the act. This meant an average of £230 ($1,150) for each physician. This was in addition to the income derived from private practice. Mr. Lloyd-George stated that the figures secured so far showed an increase of from $750 to $1,000 per year in the average physician's income. This increased pay meant more work, but was also a very good thing from the point of view of the community, as it meant that millions of persons were now getting proper medical attention who previously had none at all. The general result was that the remuneration of the medical profession was increased. The act as it stands at present could be improved, amended and altered in the light of experience. The state was feeling a deeper sense of responsibility for the well-being of every individual. A general health survey of the British nation was now being taken, which would include families and individuals who have never before had proper care or attention. The hand of the state to-day, instead of being the hand of punishment, was a hand of mercy, which through the doctor, was going down to rescue many poor wretches from the conditions under which they live.

RESPONSE OF DR. ADDISON

Dr. Addison, in responding, said that a new phase was coming over public opinion. Ill health had always meant a great loss of both energy and treasure; but now that sickness could be expressed in the terms of so many thousands of pounds weekly and yearly, it appealed directly to the British pocket. The problem of public health had emerged from the general into the particular. It now arrested the attention of every citizen, and demanded well-considered scientific and practical effort, not only toward an earlier and more effective treatment of sickness, but also for increased prevention of its occurrence. There was need for more men in the medical profession than heretofore, as the demands for public service are greater.

In this connection, it was interesting to contrast the situation in England, where enough properly trained men cannot be secured to do the work that is needed, with the situation in Austria where, as already reported in THE JOURNAL,[1] the medical profession has issued a warning to the public that there are now in the medical schools of Austria as many students as the profession can absorb in the next six years.

Discussing the influence of physicians on legislation and administration, Dr. Addison said that their knowledge and

1. Warning against the Medical Career, Vienna Letter, THE JOURNAL A. M. A., March 21, 1914, p. 947.

experience would be of increasing value to the community. Public interest must always come first. It is a short-sighted and suicidal policy that seeks to promote the interest of any class at the expense of the general interest. The people would welcome any help and guidance that modern, scientific knowledge could afford. Discussing the present organization of the British public health service, Dr. Addison said that no one looking fairly into this question could fail to recognize the confusion that now existed. It was at present a medley of authorities with an enormous waste of effort. Two of the greatest items of expense were those connected with tuberculosis and the illness of old age. The large grants for tuberculosis made to county authorities would make it possible to remove tuberculosis gradually from the operation of the poor law, while the workings of the national insurance act, providing care for aged working people, would insure them proper attention. Even with these changes, however, the present situation regarding public health administration could clearly be simplified by establishing a common aim and direction for public health activities. The numerous inspectors, the overlapping boards and authorities and the conflicts of authority all increased the defects of public health administration without increasing its efficiency.

POSSIBILITIES OF THE FUTURE

Looking into the future Dr. Addison said that when discussing possible developments, certain elementary facts must be kept in mind, which no government can possibly ignore. Any service, in order to be satisfactory, must be one that will attract and keep an adequate number of capable men, that in its operations contains incentives to, facilities for, and encouragement of, increased efficiency, and that makes use of that intimate personal relation and trust which must exist between physicians and their patients. It might be of great value if arrangements could be made for medical men to work in groups, where they might combine for mutual help and have access to better means and facilities for work. The great question of providing adequate hospital accommodations for the sick of the nation is one which must be solved in the future. The most important function of the medical profession, however, Dr. Addison conceived to be the use of all the power of medical organization, all the knowledge and all the art and science of medicine toward an increased prevention of disease. The duty of physicians is clear. The duty of the state must be equally clear. Dr. Addison's statement on this point is worth quoting in full:

"The state, however, has no right to ask any class of men to do the impossible. It confronts the medical profession with six hundred thousand ill-nourished children in our elementary schools, with three hundred thousand who have adenoids and so forth; it deplores the waste of infant life; it points to an army of factory girls and women workers with anemia, chronic indigestion, etc., and it is beginning to say to the medical profession, 'We want these things altered. We want these people to be healthier. Will you help us to treat them?' It would be invaluable if the medical profession after fair, complete and organized consideration, but in a full and fearless manner, were to say to the state:

"'Yes! we will turn to the task with all good will and do the best we can, but we cannot undertake to make these children healthy by drugs. They need good food, fresh air, a clean and well-ventilated home. So long as these things are absent, so long as many of these children, with too little sleep, pass half their hours in the stuffy, stagnant air of an overcrowded room, so long will they crowd into our clinics and outpatient departments.'

"I hope also that they will add: 'We claim also that those whose duty it is to make reports on the conditions of labor and home life of the people should be free to tell the truth, and the whole truth, without fear or favor. These anemic girls, these dyspeptic women, are not to be put right by medicines alone. The hours they work, the conditions they work under, are often also concerned, as well as their habits of life and diet. It is useless for us to tell people to take proper food who have not the means of obtaining it, who sometimes are ignorant of how to cook it when they get it, and who often enough are paying what should be an economic rent for a decent home but are obtaining only tenement quarters without any facilities for decent life. It is the duty of the state to use its schools and other agencies to the full and give to the people a knowledge of these matters, of an appreciation of the value and meaning of cleanliness and temperance, and of other things which are of so grave importance in their daily life.' There is no limit to the usefulness of a proper and enlightened cooperation between the medical profession and the state, and its influence would be felt in every department of national life."

In conclusion, Dr. Addison said:

"The community has a growing need for the services of medical men in the wider sphere to which I have referred. There is a place for them there in which their help and influence as citizens and as trained men should be felt, in the education and preservation of healthy and clean-living people, in the molding of our laws, in the administration of them, and throughout the whole organism of society. This is a place they well may occupy, and in doing so in a public and collective as well as in a private and individual capacity, they become trusted counselors and honored servants of the commonwealth."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7. Sec., Dr. John Wix Thomas, Phoenix.

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

CANADA: Alberta, April 24. Dr. Cecil E. Race, Registrar of the University of Alberta, Edmonton.

COLORADO: Denver, April 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

IDAHO: Wallace, April 7. Sec., Dr. John F. Schmershall, Jerome.

ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

LOUISIANA: New Orleans, May 4. Homeopathic Board, Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

MINNESOTA: Minneapolis, April 7-10. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

MONTANA: Helena, April 7. Sec., Dr. Wm. C. Riddell, Helena.

NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

NEW MEXICO: Santa Fe, April 13. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 14. Sec., Dr. John W. Duke, Guthrie.

PROVINCE OF ALBERTA: April 24. Dr. Cecil E. Race, Registrar of University of Alberta, Edmonton.

TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

UTAH: Salt Lake City, April 6-7. Sec., Dr. G. F. Harding, 403 Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

South Dakota January Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the written and practical examination held at Pierre, Jan. 13-14, 1914. The number of subjects examined in was 13; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 10, of whom 7 passed and 3 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1899)	85.1
Bennett Medical College	(1913)	85.7
Rush Medical College	(1887)	84.2
University of Illinois	(1912)	80.7
Iowa Medical College	(1886)	83.5
University of City of New York, Med. Dept.	(1894)	84.6
University of Virginia	(1909)	87.1
FAILED		
Atlanta College of Physicians and Surgeons	(1909)	73.9
Bennett Medical College	(1913)	73.9
American Medical College, St. Louis	(1912)	73

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Rush Medical College	(1897)	Minnesota
Kentucky University	(1904)	Nebraska

University of Louisville	(1909)	N. Dakota
Cotner Medical College	(1904)	Nebraska
University of Nebraska	(1909)	Nebraska

The following questions were asked:

CHEMISTRY

1. What use has a physician for knowledge of chemistry? 2. Name ten elements, giving valence and atomic weight. 3. Give chemical name, common name, physical appearance and common use of: (*a*) $MgSO_4$, 7 H_2O; (*b*) Na_2CO_3, 10 H_2O; (*c*) $CH.Cl_3$; (*d*) C_2H_2; (*e*) H_3BO_3. 4. Give chemical name, formula, physical appearance and common use of: (*a*) sal ammoniac; (*b*) saleratus; (*c*) calomel; (*d*) corrosive sublimate; (*e*) lunar caustic. 5. What is glycerin? How is it produced? 6. On what chemical substances do hardness of water usually depend? What would you use to soften water? How does that do it? 7. Boil acid urine; if a cloud or precipitate appears, what substances may the cloud or precipitate be? How determine which it is? 8. (*a*) Describe your favorite test for sugar in urine. What are its fallacies? (*b*) Name all the ingredients of your reagent. (*c*) What color change takes place? (*d*) What is the chemical reason for the color change? 9. Give a test for copper in canned vegetables. 10. Is there chemical or pharmaceutical incompatibility in the following prescription? Where is it and why?

R	Strychninae sulphatis	gr. ss (½)
	Ammonii chloride	ʒi
	Ammonii carbonatis	ʒi
	Aquae purae	ʒi
	Syrupus pini strobi comp. q. s. ad.	ʒiv

Misce.

PHYSIOLOGY

1. What is lymph and how formed? 2. What is circulation of the blood? Follow it from and until it returns to the heart. 3. What is the object of circulation? Describe the changes that take place in the blood as it passes through the body. 4. Describe digestion in the mouth and stomach. 5. What is respiration and what causes it? 6. What are the enzymes? Give their chemical composition. 7. Describe intestinal digestion. What juices enter into it? 8. Name the excretory organs. What do they excrete? 9. Name the ductless glands. What are their specific office in the human economy? 10. How is heat produced and how maintained in the human body?

EMBRYOLOGY, HISTOLOGY AND ANATOMY

1. Describe the maturing and fecundation of the ovum. 2. From what embryonic layer does the respiratory tract develop? What other structures are developed from the same layer? 3. Describe microscopic difference in appearance of heart-muscle and skeletal muscle. 4. Describe microscopically superficial cells lining trachea. 5. Describe the patella. What is its function and how does it functionate? 6. Describe the shoulder-joint. 7. Name the muscles participating in tranquil respiration. 8. Give the blood-supply of the stomach. 9. Give origin and distribution of trifacial nerve. 10. Draw and describe the dorsal surface of the tongue.

PATHOLOGY

1. What is the cause of death following burns? 2. What is thrombosis? Describe the manner of its formation. Where are emboli most frequently found? Of what do emboli most frequently consist? 3. What general pathologic lesion characterizes chronic alcoholism? 4. What is ischemic paralysis? 5. State the result of stenosis of the tricuspid valves of the heart. 6. Carcinoma of stomach: Is it usually primary or secondary to carcinoma elsewhere? Where is it usually situated? Give most common type. 7. What conditions may cause dropsical effusion in the abdomen and in the lower extremities? 8. What diseases of the mother may be transmitted to the fetus? 9. Explain the process occurring in necrosis of bone. Give the pathologic condition characteristic of necrosis and caries of bone. 10. What determines the benign or malignant nature of a new growth?

BACTERIOLOGY

1. What is the cause of difference in the virulence of diphtheria? 2. What pathogenic conditions may be produced by the colon bacillus? 3. What is tuberculin? How is it produced? What is it used for? 4. Describe in detail the bacterial findings in puerperal septicemia. 5. How does the tetanus bacillus induce its effect? On what theory is tetanus antitoxin administered?

SKIN AND GENITO-URINARY

1. Diagnose secondary syphilis and outline treatment. 2. Give causes and treatment of orchitis. 3. Give etiology, diagnosis and treatment for urticaria. 4. Give symptoms, diagnosis and treatment of urethral stricture. 5. Give etiology, diagnosis and treatment of erysipelas.

EYE, EAR, NOSE AND THROAT

1. Treat a case of severe corneal ulcer. 2. Describe and give treatment for dacryocystitis. 3. What do you understand by the following: hypopyon, Argyll Robertson pupil, mydriasis, presbyopia, ptosis? 4. What would be your treatment for penetrating wound of the cornea? 5. Give four common symptoms caused by nasal obstruction. 6. Give symptoms and treatment for hypertrophied turbinate. 7. Treat a case of chronic otitis media. 8. Describe the eustachian tube, giving anatomy and function. 9. Give your method of differentiation between middle and internal ear disease. 10. Give three common causes for deafness and treat a given case.

OBSTETRICS

1. Conduct a case of normal labor. 2. Would you use chloroform in labor? If so, why? If not, why? 3. What is meant by puberty? What is meant by nubility? What is meant by menstruation? At what age in this climate do these begin? 4. How many, and describe briefly the different circulations during fetal development and immediately after birth. 5. Give the usual length of time in normal gestation. Give maximum and minimum length of time. 6. Give positive signs of pregnancy. 7. What is placenta praevia, and how would you manage a case? 8. Give indication for the use of forceps. 9. Give indication for version, and how would you proceed to accomplish it? 10. Give cause for post-partum hemorrhage and how would you manage the same?

GYNECOLOGY

1. What advice about bathing, sponging and exercise during normal menstruation would you give to a healthy young woman accustomed to warm tub-bath twice per week, cold sponging every morning and 2 miles' brisk walk daily? Why? 2. Give all causes of uterine hemorrhage. 3. Diagnose, treat and prognose chronic gonorrhea. 4. Diagnose, treat and prognose chronic leukorrhea. 5. Name all probable ailments and treat the most probable one: A patient, unmarried, aged 16, 5 feet 2 inches, 125 pounds, erect, pale, walks into your office at 4 p. m. Temperature 98.6, pulse 100, respiration 20, mucous membranes pale, teeth bad, complains of having missed two menses, always regular before, sharp pain and tenderness 2 inches below ensiform process, constant for three weeks, worse at 4 p. m. daily, better after eating. Pain in lumbar, sacral, uterine and ovarian regions; no discharge. Dyspnea on exercising; no heart-murmurs; constipated as a rule, sometimes blood in stools. Nausea in morning and when pain is bad, vomits almost daily, some days several times. Mother was sick in same way at same age for two years. Tired all the time.

SURGERY

1. A man is brought into your office with both lower limbs crushed off, having fallen under a passing engine; he is in full shock, has lost considerable blood and is almost pulseless. What would be your immediate treatment? 2. Called to attend a patient who is suffering from a troublesome epistaxis. Describe the method you would pursue to check it. 3. How would you treat a perforating gunshot wound of the abdomen? 4. Describe a Colles' fracture and give your treatment for same. 5. How would you manage a case of empyema? 6. Give the technic of an operation for the cure of a mastoid abscess. 7. Give the technic of taxis in inguinal hernia. 8. Describe the operation for strangulated hernia. 9. Describe a proper method of amputating the hip-joint. 10. Under what circumstances would you consider circumcision a proper procedure?

REGULAR THERAPEUTICS AND PRACTICE

1. Define hyperchlorhydria. Give the causes, symptoms, diagnosis and treatment. 2. If summoned to a middle-aged person discovered in a comatose condition, explain how to recognize on what disease the condition depends, and give treatment for the uremic type of coma. 3. Differentiate between pyelitis and cystitis. 4. What are the four characteristic symptoms of exophthalmic goiter? Give the supposed etiology. 5. Differentiate catarrhal from croupous pneumonia. 6. On what symptoms would you base a diagnosis of typhoid fever? 7. How should acute nephritis accompanying or following scarlet fever be treated? 8. Name four diseases contraindications for general anesthesia, and state which of the four named you would consider the most important. 9. In the treatment of syphilitic node or gumma, state which should be used, a mercurial or an iodid, and give the reason therefor. 10. Describe the treatment of a case of diphtheria.

HYGIENE AND SANITARY SCIENCE

1. How would you fumigate a residence containing approximately 10,000 cubic feet of space? Name materials employed and amount of each. 2. Describe how sewage is purified in sedimentation tanks. 3. Describe the life-cycle of the common house-fly. 4. Instruct briefly a patient suffering from pulmonary tuberculosis as to the precautions he should adopt to avoid the spread of the disease. 5. Instruct briefly your nurse attending a case of diphtheria.

MEDICAL JURISPRUDENCE

1. A, attending a confinement case, finds it necessary to use instruments and calls B to administer the anesthetic. A does not sterilize the instruments and the patient becomes infected and brings suit to recover damages. Does B share the responsibility with A? 2. A, in performing a laparotomy, relies on B, a trained nurse, to pack the abdominal cavity with sponges. B also removes the sponges, but in so doing one is overlooked. Who is liable: A, the surgeon, or B, the nurse? 3. If in your practice you are called to treat an injured wrist, said injury according to your judgment is a severe sprain and you treat it accordingly, using reasonable care and skill. Later the patient calls another surgeon who discovers the injury to be a fracture. Would you be guilty of malpractice? 4. Can an unauthorized or unlicensed physician maintain an action for libel or slander against one who charges him with misconduct or incapacity in the discharge of his professional duties? 5. Would a physician be liable who takes an unprofessional, unmarried man with him to attend a case of confinement when there is no emergency requiring his presence?

HOMEOPATHIC THERAPEUTICS AND PRACTICE

1. What is the chief sphere of action of belladonna? Give characteristic indications for its use. 2. Differentiate diphtheria and follicular tonsillitis. Give two remedies for each, with indications for their use. 3. Name one remedy, with indications for its use, in each stage of pneumonia. 4. Name and give indications for two principal remedies in acute gastritis. 5. Give differential diagnosis between uremia, alcoholic coma and cerebral hemorrhage. 6. Outline your treatment for eclampsia, giving dose and potency of remedies used. 7. Name three diseased conditions in which you would prescribe arsenicum, giving symptoms fully. 8. Give indications for podophyllum in diarrhea. 9. Give symptoms and treatment of gastric ulcer. 10. Outline your treatment for cholera infantum.

ECLECTIC MATERIA MEDICA, THERAPEUTICS AND PRACTICE

1. Give differential diagnosis between small-pox, varicella, measles and scarlet fever. Treat a case of small-pox. 2. What is Bright's disease? What is diabetes? Differentiate between them and give treatment. 3. Diagnose and give treatment for typhoid fever. Should hemorrhage occur, how would you control it? 4. Give specific indications and dose for veratrum, rhus tox, podophyllum, macrotys and cactus grand. 5. Give differential diagnosis between tonsillitis and diphtheria. Treat a case of diphtheria. 6. What is ulcerative stomatitis? Give cause and treatment. 7. What is diaphoresis? Give three diaphoretics and dose of each. 8. What is a sedative? What is a stimulant? Name three of each. 9. Name three cardiac and three nerve stimulants. Give dose of each. 10. How would you treat a case of poisoning by arsenic, morphin, phenol (carbolic acid)?

Book Notices

HYGIENE FOR GIRLS, INDIVIDUAL AND COMMUNITY. By Florence Harvey Richards, M.D., Medical Director William Penn High School. Cloth. Price, 75 cents. Pp. 257, with illustrations. Boston: D. C. Heath and Company, 1913.

The author's experience as a teacher of hygiene in a girls' school has enabled her to write a fairly practical book. The language is clear and concise, and few technical terms are used. There are one or two things, however, which should be changed or omitted in future editions. While patent medicines and habit-forming drugs are condemned, it seems unwise to state the names of such drugs, even though the sequels of their use are given as follows: "Opium, chloral and the bromids deaden pain and produce sleep, but they do so at the expense of the nervous system, the nerves of which they deaden." And further on (page 208): "Hasheesh is the juice of the Indian hemp, or *Cannabis indica*. It produces a happy delirium with visions of beautiful scenes and persons. . . . Cocain taken internally causes a pleasant excitement." After reading such a statement a girl of immature mind or weak will might decide that she would like to experience these sensations and risk the after-effects. On page 41 it is stated that "gray hair may come suddenly from fright, joy or grief, though such cases are much more rare than we are commonly led to believe." So far as authenticated cases are concerned, such an occurrence is not only rare but unknown and a statement like that quoted should not find a place in a book that assumes to speak with authority.

PRACTICAL PATHOLOGY, INCLUDING MORBID ANATOMY AND POST-MORTEM TECHNIC. By James Miller, M.D., D.Sc., F.R.C.P.E., Lecturer on Pathology and Bacteriology, School of Medicine of the Royal College, Edinburgh. Cloth. Price, 7 shillings, 6 pence. Pp. 395, with 109 illustrations. London: Adam and Charles Black, 1914.

The author states that it was his aim to supply in handy form the information required for practical work in relation to pathology. In this he has succeeded; short descriptions are given of the appearances in the more common morbid processes encountered in organs and tissues; at the same time these are correlated with the changes in the other organs and tissues of the body in the various diseases. The main points in the microscopic appearances are also given briefly, for the purpose, evidently, of reminding the student what to look for when he is examining his slides. In dealing with post-mortem technic and microscopic technic, the author gives one reliable method in each case. Hence the book is for the beginner and not the specialist. The medicolegal aspects of post-mortem work are also discussed. The general arrangement of the book is the same as that of other text-books. A departure from custom, however, is the binding of the illustrations together in the form of an atlas at the end of the book following the index.

LEHRBUCH DER NERVENKRANKHEITEN FÜR STUDIERENDE UND PRAKTISCHE AERZTE IN 30 VORLESUNGEN. Von Robert Bing, Dozent für Nervenheilkunde an der Universität Basel. Paper. Price, $4.75. Pp. 606, with 111 illustrations. New York: Rebman Company, 1913.

The author, one of the most lucid writers in medical literature, discusses the entire subject of nervous diseases in thirty lectures. Writing for medical students and practitioners, he groups his material according to etiologic and physiopathologic values and not in conformity with the customary topographic and anatomicopathologic divisions. For instance, under syphilogenous diseases of the nervous system he not only describes cerebrospinal syphilis and syphilogenous combined system diseases, but also general paresis and tabes dorsalis. The chapter on dysglandular symptom-complexes embraces the lecture on myxedema, insufficiency of the adrenals and Addison's disease, acromegaly, dyspituitarism and dyspinealism. The lectures are concise and contain everything of importance, not omitting treatment. The therapeutic directions are sound and up to date in every respect. This book can safely be recommended to physicians and students as a most readable short German text-book on nervous diseases.

BIBLIOGRAPHY OF THE EDUCATION AND CARE OF CRIPPLED CHILDREN. A Manual and Guide to the Literature Relating to Cripples, Together with an Analytical Index. By Douglas C. McMurtrie. Cloth. Price, $2. Pp. 99. New York: Douglas C. McMurtrie, 298 Metropolitan Tower, 1913.

As a justification for the compilation of this book, McMurtrie describes the dearth of references to books and papers on the care and treatment of crippled children in the catalogs in many of the libraries which he consulted. This was a matter of surprise also to the various librarians, who had not realized the meagerness of their lists on this subject. By dint of considerable hard work, much corresponding and considerable time, however, McMurtrie succeeded in gathering about 725 references, and they are set forth in alphabetical order and also in the form of an analytic index by which different phases of the subject of crippled children may be looked up. This book will be of great value to those persons taking a commendable interest in these handicapped members of society.

LECTURES ON TUBERCULOSIS TO NURSES. Based on a Course Delivered to the Queen Victoria Jubilee Nurses. By Olliver Bruce, M.R.C.S., L.R.C.P., Joint Tuberculosis Officer, County of Essex. Cloth. Price, $1 net. Pp. 134. New York: Paul B. Hoeber, 1913.

This little book goes over the field of tuberculosis in an interesting way, but it would almost seem as if the author had lost sight of his audience. Nurses are destined, in his opinion to fulfil important functions in the campaign against tuberculosis. Whether they will find use for the pathology and therapeutics contained in the author's lectures is somewhat doubtful. The opsonic index, methods of diagnosis, and tuberculin and sanatorium treatment are discussed at considerable length. The author considers that ordinary sanatorium treatment is an antiquated method compared with the method of graduated labor. In regard to drug treatment he is commendably conservative. He rejects iodin, cod-liver oil and creosote. Directions for the use of tuberculin are given with considerable detail.

A TEXT-BOOK OF BIOLOGY. For Students in Medical, Technical and General Courses. By William Martin Smallwood, Ph.D., Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University. Cloth. Price $2.75 net. Pp. 285 with 256 illustrations. Philadelphia: Lea & Febiger, 1913.

This book is well adapted to the purpose for which it was written—to be an aid to the student who is somewhat familiar with laboratory methods. The author has kept the needs of the student constantly in mind and so has produced a book which, while thoroughly scientific, may yet be read with pleasure. The chapters on embryology and the biology of cells are so clearly written that they furnish a valuable aid to the understanding of the complex process of fertilization. The book is marred here and there by bad proof-reading and slipshod English, but will be a distinct addition to any student's library.

FORTSCHRITTE DER NATURWISSENSCHAFTLICHEN FORSCHUNG. Herausgegeben von Prof. Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität Halle a.S. Ninth Volume. Paper. Price, 15 marks. Pp. 280, with 104 illustrations. Berlin. Urban & Schwarzenberg, 1913.

Among the several articles of interest to the educated reader there is one of especial importance to the medical man, namely, the study on the "Importance of the Thymus in the Human Organism," by Dr. Arno E. Lampé. The article is practically a monograph on this subject, well written and richly illustrated, with an extensive bibliography at the end. An interesting biologic study is the lengthy article on the mode of the housing of fresh-water insects, by Dr. C. Wesenberg.

AMERICAN RED CROSS TEXT-BOOK ON ELEMENTARY HYGIENE AND HOME CARE OF THE SICK. By Jane A. Delano, R.N., Chairman of the National Committee, Red Cross Nursing Service, and Isabel McIsaac, R.N., Member of the National Committee Red Cross Nursing Service. Prepared for and Indorsed by the American Red Cross. Cloth. Price, $1. Pp. 256, with 17 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

This is a practical little book containing much good common sense. Home nurses should find it particularly useful, and it might be used as a reference book in any home.

Miscellany

Water-Supply of Ships on the Great Lakes

An investigation by the U. S. Public Health Service of the water-supply of ships on the Great Lakes indicates that there is room for great improvement in the quality of water supplied on these vessels. In an investigation of three vessels during the summer of 1913, among 750 persons there were over 300 cases of diarrheal disease and fifty-two cases of typhoid fever with seven deaths which could reasonably be attributed to defective water-supply on these vessels. This would indicate that typhoid and diarrhea among the passengers and crews of the entire shipping of the lakes must amount to large figures, as few of the vessels have proper equipment or methods for providing a pure water-supply. Not only is the water polluted from the habit of vessels of discharging all wastes immediately into the lakes in the main lanes of travel, but the discharge of sewage into the lakes by the large cities and towns on their banks affords a still greater source of contamination, as care is not always exercised to fill tanks outside of harbors. In 1907 it is stated that seventy-seven cases of typhoid followed a short cruise of one of the lake vessels, traced to impure drinking-water taken from the Detroit River. The water-supplies of cities along the lakes is also said to be contaminated at times by vessels discharging sewage too near to water intakes. H. De Valin, who reports on the water-supplies of ships in *Public Health Reports*, Feb. 13, 1913, says that ship-owners should pay more attention to the equipment of their vessels in order to insure safe water-supplies. Filtering will not answer the purpose as it cannot be depended on for complete removal of harmful bacteria. Apparatus for distilling or sterilizing the water should be provided. Raw water of safe quality may be obtained from the municipal supplies of some cities along the lakes, and in some instances water is taken from this source by boats while lying in the harbors. Chicago now requires that vessels using that port must instal carrying devices so that sewage shall not be discharged within a certain distance of water intakes, or while in the harbor.

Rocky Mountain Spotted Fever in Montana

The investigation of this disease in Montana was continued during 1913 by Surgeon L. D. Fricks of the Public Health Service, in connection with the state health authorities of Montana, who were granted an appropriation by the legislature for that purpose. Dr. Fricks succeeded Dr. T. B. McClintic of the Public Health Service, who became infected and died during 1912 while carrying on investigations in the Bitter Root Valley. In *Public Health Reports*, Feb. 20, 1914, Fricks gives an account of the efforts to rid the most heavily tick-infested areas of the ticks by dipping the domestic animals, killing off the small wild animals and pasturing certain areas with sheep. The latter expedient was in continuation of an experiment begun in 1912 with a small band of sheep. It was found that ticks on sheep usually died before becoming engorged and fertilized, and while the experiment of 1913 was not conclusive, yet it was found in tick surveys in various parts of the valley in 1913 that areas pastured by sheep contained no ticks, while in areas pastured by cattle ticks were fairly abundant. On cultivated land practically no ticks were found on the west side of the Bitter Root Valley, extending up to the foothills; then there was a zone of heavy tick infestation along the hills where horses and cattle were pastured. Above the range of the domestic animals there was a zone of moderate infestation, and above this an area called the goat country, on account of roaming herds of Rocky Mountain goats, infested with ticks estimated at millions per square mile. The presence of these infested areas just beyond the zone of cultivated or pastured land increases the difficulty of permanent tick eradication, and Fricks says that some method of protection must be provided or buffers interposed against the introduction from above of ticks of wild animals, a comparatively high percentage of which are known to be infected, before there can be any lasting protection against spotted fever. The article includes brief reports concerning Rocky Mountain spotted fever in California, Oregon, Washington and the other Rocky Mountain states in which this disease is found.

A System of Stethoscopic Abbreviations

Professor Saugmann of Vejlefjord has proposed a list of abbreviations to be used in reporting stethoscopic findings. It was adopted by the conference at the eleventh meeting of the International Antituberculosis Association in Berlin, October, 1913. We print it together with the Latin, German, French and English words which the abbreviations represent:

d.	dexter	rechts	droit	right
s.	sinister	links	gauche	left
a.	anterior	vorne	antérieur	anterior
p.	posterior	hinten	postérieur	posterior
sup.	superior	oben	supérieur	superior
inf.	inferior	unten	inférieur	inferior
C.	costa	Rippe	côte	rib
C_2 etc.	costa II etc.			
interc.	spatium intercostale	Zwischenrippenraum	espace intercostal	intercostal space
Cl.	clavicula	Schlüsselbein	clavicule	clavicle
Pap.	papillula mammæ	Papille	mamelon	nipple
Sp.	spina scapulæ	Schultergräte	épine de l'omoplate	spine of scapula
Ang.	angulus scapulæ	Schulterblattwinkel	angle de l'omoplate	angle of scapula
¼ Sc.	medio scapulæ	Mitte der Reg. infraspinata	au milieu de la région sousépineuse	middle of infraspinous region of scapula
— Th.	usque ad Thorax	bis zu	jusqu' à	up to
applan.	applanatus	abgeflacht	aplati	flattened
dilat.	dilatatus	ausgedehnt	dilaté	dilated
retard.	retardatus	nachschleppend	retardant	slowed
Margo mobil.	margo pulmonis mobilis	Lungenrand beweglich	limite du poumon mobile	lung border movable
immobil.	immobilis	unbeweglich	immobile	immovable
M.*	mutito, mutus	Dämpfung	matité	dulness
Tymp.	tympanismus	Tympanic	tympanisme	tympanitic sound
Met.	metallia	Metallklang	résonnance metallique	metallic sound
Resp.	respiratio	Atmung	respiration	respiration
Insp.	inspiratio	Einatmung	inspiration	inspiration
Exsp.	expiratio	Ausatmung	exspiration	expiration
ves.	vesicularis	vesikulär		
bronch.	bronchialis	bronchial	souffle bronchique	bronchial
amph.	amphoricus	amphorisch	souffle cavitaire	amphoric
sacc.	saccatus	saccadiert	saccadé	cog-wheel
prolong.	prolongatus	verlängert	prolongé	prolonged
forte	fortis	verschärft	exagéré	strong
dim.	diminutus	abgeschwächt	affaibli, diminué	diminished
Rl†		grossblasiges Rasseln	gros râles	coarse râles
Rl†		mittelblasiges Rasseln	râles moyens	moderate râles medium râles
rl†		kleinblasiges Rasseln	râles fins	fine râles
( )		nur nach Husten zu hören	après la toux seulement	only after coughing
(Rl_1)		spärliches mitteiblasiges Rasseln, nur nach Husten zu hören, etc.	râles peu nombreux moyens, perceptibles seulement après la toux etc.	few medium râles only after coughing
sicc.	siccus	trocken	sec	dry (râles)
cons.	consonans	klingend	consonnant	tinkling
crep.	crepitans	crepitierend	crépitant	crepitant
subcrep.	subcrepitans	subcrepitierend	souscrépitant	subcrepitant
crac.		knackend	craquements	crackling
rh.	rhonchi	Rhonchi	râles	rhonchi
frict.	frictio	Reiben	frottements	friction
Frem.	fremitus vocalis	Stimmfremitus	vibrations vocales	vocal fremitus
Brph.	bronchophonia			

* All quantitative variations of phenomenon are indicated by the figures 1 to 3 added to the principal sign, the number 1 to represent the minimum degree and the number 3 the maximum of the said phenomenon. For example, M_1, M_2, M_3 signify slight dulness, marked dulness, and complete dulness; Rl_1, Rl_2, Rl_3—few râles, several râles, and many râles, and so forth.

† Note the meaning of the capital and small letters.

The Causes of Fatigue

Dr. William Stirling, professor of physiology in the University of Manchester, recently delivered an address on "Health, Fatigue and Repose." Most of the breakdowns in man's life were due to himself, because of ignorance, recklessness, or both. Overwork, without sufficient repair of an organ, whether brain or eye, digestive organs or muscles was the primary cause of fatigue. All the organs of the body could not run at full speed at the same time. Mental fatigue greatly impaired bodily activity, and physical or muscular fatigue had a distinct effect on brain activity. The observations of Dr. Leonard Hill on the effects of a liberal supply of oxygen in fatigue were most important. Somnolence in churches and chapels seemed on occasion to occur at sermon-time, but it was not in all cases to be attfibuted to the sermon. The explanation lay rather in the badly ventilated atmosphere, and in the fact that Sunday, though the first day of the week, was to most church-goers the close of the week. The fatigue problem was all important to both the teacher and the child at school. It was well known that certain school subjects produced fatigue sooner than others. The following represented the order of subjects arranged according to difficulty: mathematics (standard), 100; Latin, 91; Greek, 90; gymnastics, 90; history and geography, 85; French and German, 82; natural history, 80, and drawing and religion, each 77. The energy of our nerve-cells and our muscles exhibited rhythmic variations in the course of the day. In each case they were most energetic between 10 and 11 in the morning, and these periods should be selected for the lesson that was apt to cause most brain fatigue. As to the causes of fatigue, the view that the chemical substances in the muscle or in the blood were used up more rapidly than they were replaced was substantially true. That muscular fatigue was partly a chemical process was shown by the fact that if an extract were made from the muscles of an animal that had been fatigued and injected into the muscles of a fresh animal, the muscles of the fresh animal showed phenomena which could not be distinguished from those of fatigue. If the blood-vessels of a fatigued muscle were washed with oxygenated water containing a little common salt—a liquid which had no nutritive properties the waste-products were removed. Nothing that could yield energy to the muscles was added, yet the muscle retained its activity.

Pellagra Investigations in the West Indies

After leaving the North American continent, L. W. Sambon proceeded to the West Indies, where he visited Jamaica, Barbados, Trinidad, Grenada and other islands. In the hospitals, asylums and rural districts he met many cases of pellagra, and proved the existence of the disease in several areas in which its presence had previously been unknown. Dr. Sambon also visited British Guiana and found pellagra along the coast from Demarara to the Berbice River. In part of his trip Dr. Sambon was accompanied by Captain Siler, U. S. Army, chief of the American Pellagra Commission, and by Mr. Jennings of the Entomological Bureau, Washington, D. C. The observations made will certainly add much to the knowledge of the distribution of the disease. Besides the study of pellagra in its etiologic and epidemiologic aspects, a great deal of useful and interesting information has been gathered on the causation and topographic distribution of other tropical ailments, more especially blackwater fever, filariasis and elephantiasis, as well as on the subject of leprosy.—*Brit. Med. Jour.*

Beriberi in New Jersey

During a period extending over three years Dr. Livingood, jail physician at Elizabeth, N. J., has tabulated twenty-two cases of "jail edema" among the prisoners confined in the county jail. There is a history of this disease having occurred in the jail periodically during the last ten or fifteen years. It is stated that at least 80 per cent. of the prisoners serving more than ninety days contract the disease, and the belief that these were cases of beriberi has been confirmed. Herman B. Parker of the U. S. Public Health Service, in company with Dr. Livingood, saw six cases in the jail or in the hospital, all of which were diagnosed as beriberi. Of three patients seen in the jail, one had practically recovered and one presented typical symptoms of the paralytic form of the disease, dilated heart, absence of patellar reflexes, areas of anesthesia over the peroneal side of both legs, atrophy of muscles and pain on pressure over nerves. In the third case, although the prisoners had not previously come under medical observation, well-marked areas of anesthesia over peroneal muscles and tibia, pain on pressure, a moderate grade of anemia and beginning edema of the left leg were found. Exaggerated patellar reflexes were found also in this case. No data are given in regard to diet or the sanitary surroundings of the prisoners in the report given by Parker in *Public Health Reports*, Feb. 6, 1914.

Medicolegal

Chiropractors for State Board Must Have Complied with Medical Practice Act

(*Green, et al. vs. Hodges, Governor* (*Kan.*), *138 Pac. R. 605*)

The Supreme Court of Kansas holds unanimously that Chapter 291 of the laws of that state of 1913, relating to the practice of chiropractic, and creating a board of chiropractic examiners, does not require the governor to appoint on that board persons who have not complied with the statutes regulating the practice of medicine and surgery.

The plaintiffs asked that the governor be required by mandamus to appoint the board. The first section of the act creates a state board of chiropractic examiners, to be composed of "one ordained minister, one school-teacher, and three practicing chiropractors of integrity and ability, who shall be residents of the state of Kansas and shall have practiced chiropractic continually in the state of Kansas for a period of not less than two years." The governor, in giving the matter consideration, asked and obtained the opinion of the attorney-general, in which that officer advised that there was such ambiguity in the statute that action by the governor ought not to be taken.

The plaintiffs averred that they were engaged in the practice of chiropractic, were graduates of schools and colleges of chiropractic, possessed the necessary qualifications, and were desirous of obtaining a certificate to practice chiropractic in the state, and that there were many others for whom they also appeared, who were entitled to such certificates. But it was not stated in the petition that the plaintiffs, or any of the persons represented by them, had complied with the statutes relating to the practice of medicine and surgery, although the law required such compliance. The statute referred to, before its amendment in 1913, declared that: "From and after the first day of September, 1901, any person who shall practice medicine and surgery or osteopathy in the state of Kansas without having received and had recorded a certificate under the provisions of this act, or any person violating any of the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall pay a fine of not less than fifty dollars nor more than two hundred for each offense. . . ." The amendment of this section consisted only in the omission of the words "or osteopathy." That a certificate, as provided in the act from which this quotation is made, was a condition precedent to the right to practice chiropractic in Kansas was settled in *State vs. Johnson*, 84 Kan. 411, and adhered to in *State vs. Peters*, 87 Kan. 265, and *State vs. Cotner*, 87 Kan. 864, and is therefore not an open question.

As the practice of chiropractic without such a certificate is a criminal offense, the petition, which alleged such practice for two years, showed on its face violations of the law, and a criminal prosecution might be instituted for each specific act of practice defined in the statute, unless it should be presumed, without any averment of the fact, that the plaintiffs and others for whom they sued had such certificates. In

passing the statute creating a chiropractic board, the legislature did not attempt to condone past offenses or relieve violators of the existing law in any way from its penalties.

The governor, by constitutional mandate, is charged with the duty to see that the laws are faithfully executed. It would be inconsistent to require the governor to reward with office under one law those who have persistently broken another law on the same general subject, which it is his equal duty to enforce. The court is persuaded that it was not within the legislative contemplation that he should do so, but that he should appoint the chiropractors on the board from those who had complied with the statute regulating the profession of medicine and surgery. There is no necessary conflict in these provisions. Indeed, Section 6b provides that "applicants for license under this act shall be required to pass the same examination in physiology, anatomy and hygiene and systematology required of licensed practitioners of medicine and surgery in this state." Whether the clause quoted refers to an examination by the same board licensing practitioners of medicine and surgery, or by the board created by this act, is not clear, and is not important to the present inquiry. The important fact is that chiropractors must pass an examination on the subjects named the same as other practitioners in medicine and surgery.

Validity as a Sanitary Measure of an Enactment Prohibiting the Discharge of Dense Smoke

(*People vs. New York Edison Co.* (N. Y.), *144 N. Y. Supp. 707*)

The First Appellate Division of the Supreme Court of New York reverses a lower-court decision holding unconstitutional the section of the sanitary code providing that, "No person shall cause, suffer or allow dense smoke to be discharged from any building, vessel, stationary or locomotive engine or motor vehicle, place or premises within the city of New York, or on the waters adjacent thereto, within the jurisdiction of said city," etc.

The court says that, at the common law, smoke was neither included in the classification of public nuisances, nor embraced in the enumerated causes of such nuisances; but, since the early development of the common law, conditions with respect to the kinds and use of fuel have so materially changed that its ancient doctrines on the subject have long since ceased to be adequate. The marvelous growth of our manufacturing and transportation industries, the rapidly increasing urban population, congested in small areas, and the progress in scientific investigations with respect to conditions affecting health, have rendered it necessary in the interest of the public welfare to impose specific limitations and restraints on the use of private property that were unknown to the common law.

The possible effect of such smoke on those afflicted with weak or unhealthy lungs who are obliged to live in overcrowded tenements and for whose safety both the state and thousands of charitable people have been and are solicitous, as is shown by the establishment and maintenance of sanatoriums, is alone sufficient to indicate that this was a proper subject for legislative investigation and would warrant the enactment of appropriate regulations and restrictions of which the court may take judicial notice. Moreover, it is common knowledge that there would be great public discomfort and injury, both to health and to property, if the unrestricted use of soft coal were permitted in a large city.

It is evident that the object of this enactment was the prevention of the discharge of smoke of such a character and in such quantities that it might injuriously affect the public health or comfort, or injure property, and the court would not be warranted in convicting for a violation of this section, excepting on evidence from which an inference to that effect might be drawn. The application of this section was not intended to be limited to cases in which evidence is adduced embracing every element on which a conviction as for maintaining a public nuisance might have been had at common law, or even under the penal law, and it should not be so limited. The section should have a reasonable construction which would preclude a conviction for a mere accidental or occasional momentary discharge of dense smoke, but which would insure the prevention of a continuous discharge or a discharge at intervals of large volumes of smoke, such as is caused by the use of soft coal.

That there has been wide-spread progressive public agitation for the suppression of smoke nuisances is shown by the fact that in at least three states the legislature itself has declared dense smoke to be a public nuisance in and of itself, or it was so declared under authority clearly delegated by the legislature, after ordinances to the same effect had been declared void, as unauthorized, and the later legislation was in every instance sustained.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

Alabama Medical Association, Montgomery, April 21-24.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
Am. Assn. of Pathologists and Bacteriologists, Toronto, Apr. 10-11.
American Dermatological Association, Chicago, May 14-16.
American Gynecological Society, Boston, May 19-21.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Surgical Association, New York, April 9-11.
Arizona Medical Association, Tucson, Apr.l 21-22.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
California State Medical Society, Santa Barbara, April 14-16.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Georgia Medical Association, Atlanta, April 14-16.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Louisiana State Medical Society, New Orleans, April 20-23.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Mississippi State Medical Association, Columbus, April 14-16.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New York State Medical Society, New York, April 28-30.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
South Carolina Medical Association, Florence, April 14-16.
Tennessee State Medical Association, Memphis, April 7-9.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

March, XXXV, No. 3, pp. 115-178

1 Factors of Safety in Treatment of Fractures. J. L. Bendell, Albany.
2 Diseases of Nasal Accessory Sinuses. E. A. Stapleton, Troy City.
3 Autogenous Vaccines in Colon Bacillus Infections. W. B. Stone, Schenectady.

American Journal of Medical Sciences, Philadelphia

March, CXLVII, No. 3, pp. 313-468

4 *Etiology and Pathogenesis of Bronchiectasis. C. P. Howard, Iowa City, Ia.
5 Spontaneous Rupture of Spleen in Typhoid; Report of Case Cured by Splenectomy. L. A. Conner and W. A. Downes, New York.
6 *Pathology of Thyroids from Cases of Toxic Non-Exophthalmic Goiter. L. B. Wilson, Rochester, Minn.
7 Prognostic Value of Renal Function. L. G. Rowntree, Baltimore.
8 *Iron in Cells of Central Nervous System. D. J. McCarthy, Philadelphia.
9 *Apparatus for Production of Therapeutic Pneumothorax. S. A. Knopf, New York.
10 *Tonsillar Infection. G. B. Wood, Philadelphia.
11 Broader Issues of Psychoanalytic Movement. J. J. Putnam, Boston.

12 *Improvement of Benedict Method for Determination of Sugar in Urine. W. Weinberger, New York.
13 Application of Calculus to Medical Sciences. I. J. Schwatt, Philadelphia.
14 *Fibroma Molluscum Gravidarum. R. L. Sutton, Kansas City, Mo.
15 *Rheumatoid Arthritis. R. Pemberton, Philadelphia.

4. **Etiology and Pathogenesis of Bronchiectasis.**—Four cases are analyzed by Howard. He points out that bronchiectasis is not an infrequent clinical condition, and is too often mistaken for pulmonary tuberculosis. The possibility of a foreign body or syphilitic stenosis must always be excluded as etiologic factors. Roentgenograms are helpful in the case of a foreign body, but bronchoscopy should be carried out to exclude a foreign body and to treat a possible stenosis of a bronchus. The etiology is manifold, but the inflammatory causes are the most common. Of the various theories Howard believes that advanced by William Ewart is the most rational and scientific. It considers a faulty distribution of air space as a predisposing factor common to all cases. The general mechanism of dilatation is found in obstruction in the broadest sense of the word.

6. Also published in *Journal-Lancet*, February 15, and abstracted in THE JOURNAL, March 14, p. 881.

8. **Iron in Cells of Central Nervous System.**—A careful investigation was made by McCarthy of ganglion cells in the brain of a patient who suffered from an extensive hemorrhagic encephalitis in the cortex. The iron reaction was not demonstrated in the cortical ganglion cells in this case, but was obtained in a striking cell reaction in the plasma-like cells of the pia-arachnoid and in the elastic coats of the smaller cortical arteries.

9. **Apparatus for Production of Therapeutic Pneumothorax.**—This new apparatus described by Knopf was originally the Forlanini apparatus, which was modified by Saugman, again by Muralt and Nebel, and then on Knopf's suggestion made in a little more substantial form, more easy to transport, more clearly graduated, and with glass tubes inserted in the rubber hose connecting the apparatus with the thoracic cavity.

10. **Tonsillar Infection.**—This is a preliminary report concerning the passage of anthrax bacilli through the tonsillar tissues as determined by experimental research. Wood found that the tonsils in the hog are more readily infected by the anthrax bacillus than any other portion of the buccal or pharyngeal mucosa. The clinical history of this disease in the hog shows that in a great majority of idiopathic cases, the pharynx is the site of the invasion, and in all these cases of pharyngeal disease the tonsils are the portal of entrance. In none of Wood's experiments was there any involvement of the pharyngeal or buccal mucosa other than the tonsils.

While the culture of anthrax was generally brought into the more intimate contact with one of the tonsils it was impossible to limit the bacilli to the tonsillar surface and they must have come in contact with a large part of the pharynx. At the inoculation an effort was made to rub the emulsion into one tonsil only, but in only one case were the lesions limited to only one tonsil, and in this case the tonsil affected was not the one on which the culture had been rubbed.

Anthrax bacillus peneterates through the cryptal and not the surface epithelium and probably always gains access to the parenchyma of the tonsil by passing through the living, unaltered cryptal epithelium, and having gained access through the superficial layers of this epithelium it tends to multiply in the deeper layers and then pass into the interfollicular tissue. The anthrax bacillus penetrating through the living normal epithelium causes a devitalization of the tissue which paves the way for a secondary infection from the staphylococci or other pathogenic organisms. The rapidity of the invasion is influenced both by the virulence of the organism used and by the susceptibility of the individual animal. Following the invasion the subsequent course of the disease is similar to that in other tissues.

12. **Benedict Method for Sugar in Urine.**—The modification of this list by Weinberger consists in the addition, just before heating, of approximately 10 grams (two heaping teaspoonfuls) of powdered calcium carbonate to the contents of the porcelain dish (25 c.c. of Benedict's solution, 10 to 20 gm. of crystallized sodium carbonate or one-half the weight of the anhydrous salt, and a small quantity of powdered pumice stone). Thereon the titration is conducted in the usual manner. The snow white calcium carbonate, insoluble and suspended in the alkaline solution, appears to act in a manner similar to that of sulphocyanate of copper, by effectively obliterating all color except the blue of the unreduced copper compound. The end-point obtained is sharp, the blue color being visible up to the addition of the last two drops of urine that are necessary for complete reduction, a pure white residue remaining. It is necessary, however, to add a sufficient amount of calcium carbonate, about 10 gm., otherwise the residue will appear gray and the end-points less distinct. In order to prevent sudden violent ebulition of the hot concentrated solution, it is advisable to dilute the latter with a few cubic centimeters of distilled water.

Weinberger's experiments show that the addition of calcium carbonate does not cause any unfavorable effect on the accuracy of the titration.

14. **Fibroma Molluscum Gravidarum.**—Sutton claims that the lesions of fibroma molluscum gravidarum are histologically identical with those of fibroma molluscum (the neurofibromas of von Recklinghausen).

15. **Rheumatoid Arthritis.**—Pemberton holds that rheumatoid arthritis is a preventable disease. In most instances, except where the general health is undermined by great deformities and sequelae of long standing, the disease can be arrested. For clinical purposes at least it seems to belong in the category with diabetes and gout, in that there is in each case a limit of toleration for carbohydrates, on the one hand, and proteins on the other. The rôle of the fats is not yet entirely clear, but they may prove to be borne analogously to the carbohydrates and proteins. After arrest of the arthritis the diet can generally be gradually increased until in some cases it differs but little from that of health. Both hypertrophic and atrophic arthritis respond to these measures, and their common etiology seems probable. The presence of an intercurrent or possibly causative infection is not necessarily a contra-indication to treatment, and recovery may take place in spite of it, though such factors should be eliminated if possible.

The large group of cases in which a causal source of infection cannot be found or removed, Pemberton says, lends itself particularly to these measures. Care is necessary to determine the highest level of metabolic equilibrium at which the arthritis will subside, and at or near that point the patient should be maintained. While the general health improves with the subsidence of the arthritis, and though the patients seem to acquire a toleration for a larger dietary, the general principles above described must be observed rigidly or relapse will occur. The disease is apparently not due to faulty elimination through the bowels or kidneys. It is clearly not due to "intestinal putrefaction" so-called. There is no reason to exclude protein in dietary treatment, and the ordinary carbohydrate foodstuffs are also clearly capable of causing the disease.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, LXIX, No. 3, pp. 409-580

16 Ovarian Pregnancy, with Case Report. M. Caturani, New York.
17 Two Cases of Formation of Artificial Vagina by Intestinal Transplantation. H. J. Boldt, New York.
18 Cesarean Section for Complete Prolapse of Cervix. S. P. Warren, Portland, Me.
19 Newer Conception of Syphilis and Parturition. R. W. Lobenstine, New York.
20 Extensive Rupture of Uterus in Fifth Month of Pregnancy; Supravaginal Hysterectomy: Recovery. R. Wallace, Chattanooga, Tenn.
21 Clonus in Toxemia of Pregnancy. T. C. Merrill, Washington, D. C.
22 Colon Bacillus Infections of Urinary Tract in Women. H. D. Furniss, New York.
23 Colon Bacillus Infection of Uterus, Tubes and Ovaries. E. Foskett, New York City.
24 Determination of Patency of Fallopian Tubes by Use of Collargol and Roentgen-Ray. W. H. Cary, Brooklyn.

25 Technic of Cranial Perforation of Fetus. H. C. Bailey, New York.
26 New Form of Obstetric Table. B. B. Wechsler, Pittsburgh.
27 Present Status of Fibroids of Uterus. A. J. Schoenberg, Chicago.

Archives of Pediatrics, New York

February, XXXI, No. 2, pp. 81-160

28 St. John's Guild of New York City. W. M. Hartshorn, New York.
29 Study of Child in Tuberculous Milieu. (To be Continued.) M. Fishberg, New York.
30 Theories of Acidosis in Children. M. Y. Marshall, Ann Arbor, Mich.
31 Literature on Osmosis and Edema in Infancy and Childhood. L. Watermann, Ann Arbor, Mich.

Bulletin of Johns Hopkins Hospital, Baltimore

March, XXV, No. 277, pp. 69-99

32 Cases Received in Henry Phipps Psychiatric Clinic. D. K. Henderson, Baltimore.
33 Essential Sialorrhea in a Dog, Cured by Excision of Parotid, Submaxillary and Portion of Sublingual Glands. J. W. Churchman, Baltimore.
34 *Use of Collargol in Pyelography. C. W. Vest, Baltimore.
35 Koplik's Spots on Tonsils of a Child Found to be Anaphylactic to Egg-Albumin. S. R. Miller, Baltimore.
36 Brief History of Quarantine. W. W. Ford, Baltimore.
37 Tattoo Marks for Identification of Animals in Laboratories. J. A. Hunnicutt and A. P. Jones, Baltimore.

34. Use of Collargol in Pyelography.—At operation, collargol has been found by Vest in the kidney and perirenal tissues in five cases, and in one case in the peritoneal cavity. The kidney and perirenal tissues in these cases were colored dark brown or bluish black and were edematous. The amount of discoloration was noticed in one instance to extend throughout the entire retroperitoneal space of the side injected. In this case a retroperitoneal abscess developed which necessitated a second operation. The time between the injection and operation varied from one to five days. Both 10 per cent. and 15 per cent. solutions were used. No difference in the resulting clinical symptoms was noted. Pain may be quite severe, lasting for two or three days, and once for ten days. There may be a definite rise in temperature from 102 F. being reported in two cases and 104 F. in another.

While no case of nephritis has been shown to accompany these symptoms, there are definite urinary changes. The examinations have shown white and red blood corpuscles with hyaline and granular casts to be present three days following the injection; casts for nine days; and albumin in two cases for twenty-four days; while in a third case a trace was detected after 118 days. In three cases where collargol was used, death has followed, but it is not evident that it was precipitated by the collargol.

Vest urges that collargol should be used only when absolutely necessary. It should be allowed to run into the renal pelvis in small amounts and under very low pressure. A freshly prepared solution, not over 15 per cent. should be used. It is necessary that the symptoms mentioned be known by those using this method of pyelography, and that especial care be exercised to avoid their occurrence. On account of the results here shown Vest believes that some other medium must be sought which will give a shadow but not injure the renal substance. After a more extensive use of silver iodid emulsion, this material may be found to serve well.

Canadian Medical Association Journal, Toronto

March, IV, No. 3, pp. 181-276

38 Hypertrophy of Faucial Tonsil and Its Treatment. J. Price-Brown, Toronto.
39 Case of Primary Endothelioma of Pleura. F. A. Clarkson, Toronto.
40 Treatment of Tabes Dorsalis and General Paresis with Salvarsan. G. Bates, G. S. Strathy and C. S. McVicar, Toronto.
41 Septic Puerperal Infection. H. N. Vineberg, New York.
42 Loose Bodies in Knee-Joint. S. A. Smith, Winnipeg.

Iowa State Medical Society Journal, Washington

March III, No. 9, pp. 547-614

43 Surgical Treatment of Uterine Prolapse. G. G. Cottam, Sioux Falls, S. D.
44 Gastrocoloptosis. D. Macrae, Jr., Council Bluffs.
45 Associated Abdominal Troubles. W. F. Cram, Sheldon.
46 Doctor's Wife. O. L. Chaffee, Waverly.
47 Diagnosis and Treatment of Cholelithiasis. A. G. Hejinian, Anamosa.
48 Public Health Work of Twenty-Seven Iowa Cities and Towns. M. F. Boyd, Boston.
49 *Operative Treatment of Mammary Carcinoma. C. E. Ruth, Des Moines.
50 Value and Limitations of Cystoscopy in Diagnosis. E. J. Harnagel, Des Moines.
51 Pyelo-Cystitis in Childhood. M. J. Moes, Dubuque.

49. Abstracted in THE JOURNAL, February 7, p. 487.

Journal of Biological Chemistry, Baltimore

March, XVII, No. 2, pp. 99-304

52 *Determination of Total Fats of Undried Feces and Other Moist Masses. G. J. Saxon, Philadelphia.
53 Ives Replica Diffraction Grafting in Spectroscopic Analysis. G. J. Saxon, Philadelphia.
54 *Theory of Diabetes. A. I. Ringer, Philadelphia.
55 Action of Anesthetics in Suppressing Cell-Division. R. S. Lillie, Woods Hole, Mass.
56 Organic Phosphoric Acid of Cotton Seed Meal. R. J. Anderson, Geneva, N. Y.
57 Phytin in Oats. R. J. Anderson, Geneva, N. Y.
58 Phytin in Corn. R. J. Anderson, Geneva, N. Y.
59 Chemistry of Phytin. R. J. Anderson, Geneva, N. Y.
60 Carotin, The Principal Natural Yellow Pigment of Milk Fat. L. S. Palmer and C. H. Eckles, Columbia, Mo.
61 Id. L. S. Palmer and C. H. Eckles, Columbia, Mo.
62 *Yellow Lipochrome of Blood Serum. L. S. Palmer and C. H. Eckles, Columbia, Mo.
63 Fate of Carotin and Xanthophylls in Digestion. L. S. Palmer and C. H. Eckles, Columbia, Mo.
64 *Pigments of Human Milk Fat. L. A. Palmer and C. H. Eckles, Columbia, Mo.
65 Lactochrome, Yellow Pigment of Milk Whey. L. S. Palmer and L. H. Cooledge, Columbia, Mo.
66 *Absorption and Fate of Tin in Body. W. Salant, J. B. Rieger and E. L. P. Treuthardt, Washington, D. C.
67 Limitations of Kjeldahl Method. H. D. Dakin and H. W. Dudley, New York
68 Chemistry of Gluconeogenesis. A. I. Ringer, Philadelphia.
69 Composition and Properties of Caseinates of Magnesium. L. L. Van Slyke and O. B. Winter, Geneva, N. Y.
70 Influence of Hydrazine on Glycogen Storage and on Blood Composition. F. P. Underhill, New Haven, Conn.
71 Effect of Hydrazine Derivatives on Blood-Sugar. F. P. Underhill, New Haven, Conn.
72 *Rôle of Muscle in Hydrazine Hypoglycemia. F. P. Underhill and A. L. Prince, New Haven, Conn.

52. Determination of Total Fats of Moist Feces.—The procedure detailed by Saxon is essentially a combination of the method of Folin and Wentworth for the determination of the total fats of powdered dried feces, and the method of Meigs for the determination of the fat of milk.

54. Theory of Diabetes.—Ringer's experiments suggested to him the rôle of glucose in the normal individual in preventing acidosis to be such as to deviate the *B*-hydroxybutyric acid from its ordinary course of oxidation, by combining with it and thereby changing its structural configuration so as to give rise to non-acetone genetic products. Two factors seem to be necessary for the prevention of acidosis: (1) The presence of an abundance of carbohydrates in the diet to combine with all of the *B*-hydroxybutyric acid as it produced in the intermediary metabolism of the fatty acids, leucin, tyrosin, etc. (2) The ability of the individual to accomplish the "glucosid union" with *B*-hydroxybutyric acid.

Ringer assumes that glucose acts antiketogenetically by forming a glucosid compound with *B*-hydroxybutyric acid. It seems reasonable to him to assume that since glucose and *B*-hydroxybutyric acid circulate in abundance in the blood of the diabetic, the immediate cause of acidosis may be due to the failure of that individual to accomplish this glucosid union. As *B*-hydroxybutyric acid rises in metabolism, it circulates in the blood as such, and becomes partly oxidized to aceto-acetic acid, which, in turn, is converted into acetone, all three substances being finally eliminated in the urine.

Ringer also believes that the failure of diabetics to form glycogen may be explained on exactly the same basis. In the formation of glycogen a glucose molecule attaches itself to another glucose molecule, forming a glucose-glucosid or maltose.

This glucose-glucosid with its free aldehyd radical attaches itself to a similar molecule giving rise to a carbohydrate with four glucose components. This reaction goes on, constantly increasing the size of the molecule, until the glycogen stage is reached. The chemical characteristic of all these unions is the same, namely "glucosid formation."

The failure to accomplish the glucosid union is at the bottom of all the chemical disturbances in diabetic individuals.

The failure to form glycogen, with the consequent hyperglucemia, the failure to burn glucose, and the disturbance in the combustion of the lower fatty acids, can all be explained on the basis of this theory. This failure may come on gradually, affecting first the maltose and glycogen formation, which becomes manifested by lowered sugar tolerance, hyperglucemia and alimentary glucosuria. As the disease progresses the glycogen formation becomes more and more interfered with, until there is permanent glucosuria.

As long as enough glucosid-genetic function remains to cause the conjugation of all the hydroxy fatty acids as they rise in the intermediary metabolism of the fatty acids and of protein, so long will acidosis not come into evidence. When, however, this begins to fail, acidosis appears, and the diabetic enters on the "moderately severe" stage when even the sugar that originates from the metabolism of protein is not completely utilized. When the glucosid-genetic power of the individual fails completely, there ensues the most severe type of diabetes, which is associated with complete failure in sugar combustion, giving a D ÷ N ratio of about 3.6, when on a fat protein diet and a degree of acidosis which corresponds to almost the theoretical amount of *B*-hydroxybutyric acid that can rise from the fat and protein metabolism.

62. **Lipochrome of Blood Serum.**—These papers by Palmer and Eckles on the pigment of cows' milk fat may be summarized as follows: The well-known lipochrome of the blood serum of the cow is, like the lipochrome of the milk fat, body fat, etc., of the same animal, composed principally of carotin, the widespread hydrocarbon pigment of plants. Associated in small quantity with the carotin of the serum, probably dissolved in the fat of the blood, are one or more xanthophyll pigments which are always found in more or less variable quantity associated with the carotin of plants.

The carotin and xanthophylls of the blood serum are derived from the blood and furnish the normal source for these pigments in the milk fat and body fat, etc. A variation in the quantity of these pigments in the food results in a corresponding variation in the amount found in the blood serum and milk fat. Body fat formed during this time will also be affected. The carotin is carried by the blood serum in combination with an albumin. The combination is a very firm one. Lecithin and cholesterol are probably a part of the combination. Palmer and Eckles propose the name caroto-albumin for the new chromo-protein of the blood. The caroto-albumin of the blood serum of the cow is probably of importance in the formation of milk fat, body fat and the corpus luteum of the cow. It is doubtful if this new pigmented protein is of importance in the oxygen respiration of the body. The lactalbumin of cows' milk may, among other factors, be related to the color of the milk fat. There appears to be a special relation here in connection with the high color and high albumin content of colostrum milk.

64. **Pigments of Human Milk Fat.**—The fat of human milk may be tinted by carotin and xanthophylls, the pigments which characterize the fat of cows' milk. The relative proportion of carotin to xanthophyll in human milk fat is much more nearly equal than in the fat of cows' milk. The colostrum fat of human milk is characterized by a very high color as is the case with the fat of the colostrum milk of cows. The authors are convinced that the pigment of human body fat is no doubt identical with the pigment of human milk fat.

66. **Absorption and Fate of Tin in Body.**—After the subcutaneous injection of soluble tin salts the authors noted that the metal may be found in the urine and in the contents of the gastro-intestinal canal, smaller quantities being present in the urine. Twenty to twenty-five per cent. was found in the skin; the liver contained amounts carrying between 1.5 and 8 mm., or an average of about 5 per cent. of the amount injected. After feeding soluble salts of tin to rabbits for three or four days, and to dogs for two to four weeks, only traces could be detected in the urine. After feeding soluble tin salts to rats for four months, appreciable quantities were found in the body. Soluble tin salts given intravenously disappeared from the circulation within two to three hours.

These data the authors believe justify the conclusions that the gastro-intestinal tract is the chief organ for the elimination of tin; that the kidney plays a subordinate though an important rôle. Elimination of the metal is very slow; appreciable quantities are eliminated during the first and second days. Absorption of tin from the gastro-intestinal tract may take place under certain conditions.

72. **Rôle of Muscle in Hydrazine Hypoglycemia.**—Underhill and Prince found that hydrazine subcutaneously administered to rabbits causes no greater quantity of sugar to disappear from a solution perfused through the heart than that obtained with hearts of non-hydrozinized animals in a comparable nutritive condition. With non-hydrazinized rabbits the nutritive condition, and hence possibly the quantity of glycogen present in the tissues, as indicated by starvation experiments, is apparently a factor in determining the sugar disappearance mentioned.

In confirmation of the work of previous investigators it is shown that sugar disappearance from the perfusion fluid with the beating heart is little different from that obtained when the heart is not beating and is relaxed to a minimum. These experiments therefore fail to answer the question as to the cause of diminution of blood sugar content after hydrazine administration.

Journal of Cutaneous Diseases, New York

March, XXXII, No. 3, pp. 187-256

73 Nevus Follicularis Keratosus. C. J. White, Boston.
74 Hypernephroma with Adrenal Deficiency, Scleroderma and Sclerodactylia. H. Brooks, New York.
75 Case of Lingual Tuberculosis (Primary). W. B. Trimble, New York.
76 Intestinal Microorganisms with Reference to Skin Lesions. J. S. Willock, Baltimore.
77 Investigations in Psoriasis. L. W. Ketron, Baltimore.
78 Dermatitis Exfoliativa. A. Ravogli, Cincinnati.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

March, V, No. 4, pp. 317-424

79 *Quantitative Studies of Vagus Stimulation and Atropin. J. D. Pilcher and T. Sollmann, Cleveland.
80 *Alkaloids of Quebracho. D. Cow, Cambridge.
81 *Changes in Circulatory System in Periodic Respiration. A. J. Clark and P. Hamill, London.
82 Calibration of Waller Gas Balance and Connell Anesthetometer. W. M. Boothby and I. Sandiford, Boston.
83 *Determination of Anesthetic Tension of Ether Vapor in Man; Mode of Action of Common Volatile Anesthetics. W. M. Boothby, Boston.
84 Two Types of Periodic Respiration Due to Morphin. H. G. Barbour, London.

79. **Vagus Stimulation and Atropin.**—The experiments conducted by Pilcher and Sollman showed that the heart rate after division of the vagi is influenced by the rate prevailing before the vagi were divided. The cardiac accelerator tone probably plays an important rôle in maintaining the normal heart rate. Simultaneous stimulation of the vagi with sublimital currents gives no summation, but with submaximal currents, there is a limited tendency toward summation. The current necessary to arrest the heart is only one-fourth to three times greater than the highest current which produces no noticeable showing. The dose of atropin to produce the full effect is only two to four times as great as the smallest effective dose. A partial atropin effect can be overcome by strengthening the stimulation, but the antagonism is limited. The left vagus is less susceptible to stimulation, and more susceptible to atropin than is the right vagus. This renders the animals more susceptible to atropin and less so to vagus stimulation.

The duration of atropin paralysis varies with the dose. Small doses of atropin have no effect on blood-pressure when the vagi are divided; with intact vagi, the rise is secondary to the increased heart rate and not to vasomotor stimulation.

The authors conclude that the susceptibility of the vagi to electrical stimulation and to atropin paralysis are governed by the same factors, but inversely: whatever increases the susceptibility to stimulation lowers the susceptibility to atropin, and vice versa. The threshold and the maximal value lie rather close together, both for stimulation and for atropin. Within this narrow range, summation and antagonism are

additive; outside of this range, they are not influenced by one another. Therefore, a maximal atropin effect (though the dosage is not very much greater than the threshold) cannot be overcome by the strongest vagus stimulation; or a subthreshold vagus stimulation cannot be brought above the threshold by stimulating the other vagus.

80. **Alkaloids of Quebracho.**—Quebrachine, according to Cow, is by far the most toxic of the four alkaloids investigated. In small doses it exerts a stimulating action on the central nervous system, as also do the other alkaloids. The only obvious objective effect of this is seen in the respiration, which becomes both quicker and deeper. The chief action of quebrachine in large doses is a paralyzing effect on nerve-cells; this includes nerve-cells on the autonomic system, the brain and cord. After first paralyzing nerve-cells, quebrachine in still larger doses paralyzes the vagus, the sympathetic and motor nerve-endings. Cow places quebrachine in the curare-nicotine-coniine group of drugs. It causes death by paralyzing the respiratory center at a time when the motor nerves are still responsive to electrical stimulation.

81. **Changes in Circulatory System.**—In the four cases of periodic respiration described by Clark and Hamill definite circulatory changes were associated with the end of the apneic period. In one case these changes were extremely pronounced. The circulatory changes observed were, a slowing of the pulse, a fall in the blood-pressure, and an increase in the a-v interval. These clinical results agree with the results obtained by Barbour on animals, and show that in some cases of periodic respiration the asphyxial changes in the blood during apnea are sufficient to affect the heart tissue directly. The administration of pure oxygen will relieve the irregularity of the respiration and of the cardiac action, even in extreme cases of periodic respiration, provided that the oxygen be given at an efficient concentration. The occurrence of periodic changes in the circulation when associated with depression of the respiratory center will assist in maintaining periodicity of respiration.

83. **Anesthetic Tension of Ether Vapor.**—The term "anesthetic tension," is employed by Boothby to indicate the partial pressure of ether vapor that, after equilibrium is established, can, for an indefinite period, maintain the subject in the stage of ideal surgical anesthesia. Curves are given showing the anesthetic tension of ether vapor for man is between 47 and 54 mm., probably 51 mm. A working hypothesis based on the theory of Meyer and Overton is suggested to explain the mode of action of the volatile inhalation anesthetics which can be summarized in the quantitative reversible equation $Mn + An \rightleftarrows MnAn$ in which the percentage saturation of the susceptible molecules in the nerve cells (Mn) and, therefore, the inhibition of the cell function (the depth of anesthesia), is dependent on the tension of the anesthetic vapor (An) to which these susceptible molecules are exposed.

To harmonize the fact that large variations occur in the amount of ether required by the usual methods of anesthesia with the fact that the same ether tension produces the same degree of anesthesia in all patients, it is pointed out by Boothby that the apparent variation can be accounted for by (*a*) changes in volume of respiration; (*b*) changes in rate of circulation, and (*c*) by a possible alteration in the rapidity with which the above reversible reaction takes place under a slightly different chemical environment.

Lancet-Clinic, Cincinnati

March 7, CXI, No. 10, pp. 265-296

85 Non-Suppurative Disease of Labyrinth. Von Eicken, Hess, Germany.
86 Hospitals and Their Relation to Medical Colleges and Training of Interns. C. R. Holmes, Cincinnati.
87 *Classification of Gastro-Intestinal Diseases of Infancy. I. A. Abt, Chicago.
88 *Feeding of Sick Infant. F. C. Neff, Kansas City, Mo.

March 14, CXI, No. 11, pp. 297-328

89 *Points in Treatment of Acute Ileo-Colitis. J. R. Snyder, Birmingham, Ala.
90 Essentials of Modern Artificial Feeding of Infants. R. A. Strong, Pass Christian, La.
91 Syphilis of Nervous System; Its Mode of Attack, Diagnosis and Treatment. E. A. North, Cincinnati.
92 Quarantine in Diphtheria. E. A. Fennell, Cincinnati.

87-88. Abstracted in THE JOURNAL, Nov. 15, 1913, p. 1840.
89. Abstracted in THE JOURNAL, Nov. 15, 1913, p. 1841.

New York State Journal of Medicine

February, XIV, No. 2, pp. 57-118 (Omitted from THE JOURNAL, March 21, p. 967)

93 Desirability of Greater Uniformity in Tests for Heterophoria. L. Howe, Buffalo.
94 Operative Treatment of High Myopia. W. E. Lambert, New York.
95 Conservative Treatment of Chronic Aural Suppuration. R. L. Loughran, New York.
96 Operative Findings and Results in Mastoiditis, Acute and Chronic. J. M. Ingersoll, Cleveland.
97 Tuberculous Affections of Ear. T. H. Farrell, Utica.

Northwest Medicine, Seattle, Wash.

March, VI, No. 3, pp. 61-90

98 Diagnosis and Treatment of Suppurative Diseases of Nasal Accessory Sinuses. R. Levy, Denver.
99 Interrelation between Systemic Diseases and Diseases of Eye, Ear, Nose and Throat. A. P. Lensman, Seattle.
100 *Decortication of Lung for Old Empyema. E. H. Beckman, Rochester, Minn.
101 Summary of Electrotherapeutics. E. Myers, Portland, Ore.
102 Crushing Injuries of the Extremities. R. S. Joyce, Ogden, Utah.
103 Use of Iodin in Emergency Wounds. D. K. Thyng, Tacoma.
104 Mycosis Fungoides. C. M. Cole, Caldwell, Ida.
105 Gastroenterostomy Under Local Anesthesia with Case Report. M. M. Null, Seattle.

100. **Decortication of Lung for Old Empyema.**—Five cases are cited by Beckman to illustrate the possibilities of this operation. The patients have their normal capacity restored, which, Beckman says cannot be said of any other operation for this condition. In his experience the procedure is not as severe as a complete Schede operation, although it appears much more formidable. Hemorrhage from the denuded lung is not ordinarily severe. In several instances it was extremely slight and, while the lung was injured enough to allow air-bubbles to escape in almost every case, no harm has arisen from such injury and apparently no infection in the lung has occurred.

Beckman does not claim that this operation is suitable for all cases of empyema with a large cavity, but with the patient in suitable physical condition it should be attempted before any other operative procedure for obliterating the cavity. It has not produced as much shock as the Schede operation and with reasonable care can be performed in many instances when the Schede operation was formerly indicated. But one death occurred in 11 cases in the Mayo clinic in which this procedure was used. This patient was physically below normal and had gone through a severe attack of typhoid and measles within the year. A large cavity existed which extended to the mediastinum with a connection into a large bronchus. Beckman believes that in this case the operation was carried too far or that the patient received a shock from too much manipulation along the pneumogastric nerves.

Ohio State Medical Journal, Columbus

March, X, No. 3, pp. 129-192

106 Practical Points in Obstetrics. J. F. Baldwin, Columbus.
107 Relation of Mouth and Teeth to Health and Disease. H. C. Brown, Columbus.
108 Simple Operation for Removal of Spurs and Deflections of Nasal Septum. C. P. Linhart, Columbus.
109 *Treatment of Delirium Tremens by Subdural Injection of Sodium Bromid. S. P. Kramer, Cincinnati.
110 Hysterics. M. K. Isham, Columbus.

109. **Treatment of Delirium Tremens.**—After some experimentation on the lower animals with various salts Kramer found that 1 per cent. solution of sodium bromid might be injected into the spinal canal of animals without immediate or remote harm to the nervous system of the animal. He then applied this knowledge to the treatment of delirium tremens. He has used the treatment in a series of twenty cases and vouches for its safety and efficacy. The technic of the treatment consists in the withdrawal of cerebrospinal fluid through lumbar puncture in amounts as great as possible—namely 50 to 60 c.c. The same amount of a sterile 1 per cent. solution of sodium bromid is injected with a syringe. There is absolutely no danger from increased subdural pressure. This amount and even as high as 80 c.c. of fluid has been

injected into the subdural cavity in an interval of one minute without the least sign of increased intracranial pressure. Sodium bromid is not toxic to the nervous system. The potassium salt must not be used since it is slightly irritating. The patients as a rule show an immediate improvement, a lessened delirium within a few minutes after the injection. This immediate improvement, however, disappears after a short time, to be followed in from twelve to fifteen hours by a permanent disappearance of the delirium. Occasionally after a few days there may be a relapse which is usually controlled by a repetition of the injection.

Ophthalmic Record, Chicago

March, XXIII, No. 3, pp. 109-162

111 Parinaud's Conjunctivitis. G. F. Keiper, Lafayette, Ind.
112 Unusual Complicated Case of Sphenoidal Abscess Causing Amblyopia. C. M. Harris, Johnstown, Pa.
113 Set of New Lacrymal Probes. W. B. Weidler, New York.
114 Observations During Recent Trip to Europe. J. S. Clark, Freeport, Ill.
115 New Operation for Detached Retina. F. B. Tiffany, Kansas City, Mo.
116 Steel Lodging in Sclera. E. E. Krider, Oelwein, Ia.
117 Shield for Graefe Cataract Knife and Angular Keratome. F. P. Lewis, Buffalo.

Public Health Journal, Toronto

March, V, No. 3, pp. 139-206

118 Dental Inspection and School Dental Clinics. W. H. Doherty, Toronto.
119 Importance of Oral and Dental Conditions. W. P. Caven, Toronto.
120 Relationship of Medicine and Dentistry. I. H. Cameron, Toronto.
121 Medical Inspection of Schools in British Columbia, Quebec, Ontario.
122 Feeble-Minded and Backward Children. G. S. Mundie, Montreal.
123 Housewives' League. E. Curnett.
124 Typhoid Inoculation. W. B. Leishman, London.

Texas State Journal of Medicine, Fort Worth

March, IX, No. 11, pp. 333-362

125 Local Anesthesia with Special Reference to Hernia. C. W. Allen, New Orleans, La.
126 Embryology and Anatomy of Colon. O. L. Norsworthy, Houston.
127 Colonic Membranes. J. H. McLean, Fort Worth.
128 Injuries to Hip Joint and Surrounding Tissues. W. N. Wardlaw, Corpus Christi.
129 Amenorrhea and Dysmenorrhea. G. T. Hall, Big Springs.
130 Perineal Prostatectomy. T. J. Bennett, Austin.

West Virginia Medical Journal, Wheeling

March, VIII, No. 9, pp. 291-326

131 Etiology and Classification of Rheumatism. O. F. Covert, Moundsville.
132 Medical Notes on Central American Trip. J. E. Cannaday, Charleston.
133 Prevention of Typhoid by Vaccination. M. R. Stone, Parkersburg.
134 One Hundred Cataract Cases. J. L. Dickey, Wheeling.
135 Tuberculosis. I. C. Hicks, Huntington.
136 Relation of Lactic Acid in Stomach Contents to Carcinoma of that Organ. C. L. Holland, Fairmont.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 28, I, No. 2774, pp. 461-516

1 Anthropologic Study of Portraits of Shakespeare and Burns. A. Keith.
2 Hygienic Aspect of Coal Mining Industry in United Kingdom. (To be continued). F. Shufflebotham.
3 *Pathologic Changes of Thyroid in Disease. R. Farrant.
4 Dissemination in Carcinoma of Rectum. J. W. Heslop.
5 Effects of Epinephrin. M. Donaldson.
6 Alcohol, Housing Conditions and Tuberculosis. H. Vallow.

March 7, I, No. 2775, pp. 517-572

7 Visceral Lesions of Purpura and Allied Conditions. W. Osler.
8 Oral Sepsis Simulating Henoch's Purpura. T. S. Bradburn.
9 Case of Hysterical Monoplegia Following Electric Shock. P. Stewart.
10 Hygienic Aspect of Coal Mining Industry in United Kingdom. (Concluded). F. Shufflebotham.

3. Pathologic Changes of Thyroid in Disease.—The object of Farrant's paper is to point out those diseases and toxemias that do and those that do not produce an alteration in the thyroid, to describe the pathologic changes in the gland, to compare them with those seen in goiter, and to note when these changes are associated with signs of thyroid excess. The work is based on some 700 thyroids of man and guinea-pigs collected from post-mortem examinations during the last five years.

Farrant found that the first change that the thyroid undergoes as the result of an acute toxemia is an alteration in the colloid material. It loses its staining capacity, becomes granular, vacuolated and finally disappears. During this change the gland is congested with perhaps intervesicular hemorrhage. The walls of the empty vesicles become plicated, the short or flat epithelial cells lining the vesicles become high cubical and finally columnar and greatly increased in number. The plication of the walls and the cell increase go on until the vesicles, as such, are indistinguishable; during the transition the appearance is given of villous processes growing from the walls of the vesicles. When the hyperplasia is complete, the gland is hypertrophied, but its store of secretion is exhausted. The distinction between the acute and the complete hyperplasia is that in the acute the intervesicular hemorrhage is the most marked feature, the cell and vesicular changes have not progressed as far as that seen in the complete. The length of time that it takes to undergo a complete hyperplasia varies with the toxemia and its intensity; the whole change may take place in twenty-four hours.

So certain is this hyperplasia that the thyroids taken from any one of these acute infections can be arranged in the order of the duration of the disease as it corresponds to the degree of hyperplasia, allowance being made for the very acute infections which can be noted by the extreme degree of intervesicular extravasation. An acute toxemia thus causes a cycle of thyroid changes. First, there is an acute hyperplasia in which the gland becomes hypertrophied and exhausted; when the toxin is overcome the gland involutes back to normal, but the effect of the toxemia is evident by the diminution of thyroid tissue and the intervesicular fibrosis. In the less acute toxemia the cell hyperplasia is more marked and the subsequent formation of excess of colloid during involution.

There are three characteristic stages in chronic hyperplasia: first, when the vesicles are of equal size the colloid is partially absorbed and coarsely granular and the cells are proliferated; second, when the vesicles are of unequal size and packed with colloid with cell hyperplasia between them; and third, when the gland is cirrhotic with deficiency of thyroid tissue.

Glasgow Medical Journal

March, LXXXI, No. 3, pp. 161-239

11 Retraction Ring as an Obstruction in Labor. R. Jardine.
12 History and Prevention of Venereal Disease. D. Newman.
13 Drug Treatment of Phthisis Pulmonalis. J. Craig.

Journal of Laryngology, Rhinology and Otology, London

March, XXIX, No. 3, pp. 113-168

14 Technic of Intranasal Operation for Antral Sinus Suppuration. P. Watson-Williams.
15 Treatment of Catarrh of Eustachian Tube, with Analysis of Results in Seventy-One Cases. J. W. Wood.
16 Reports for 1913 from the Ear and Throat Department of Royal Infirmary, Edinburgh. J. Hewat.
17 Abscess of Nasal Septum Secondary to Furuncle of Vestibule. D. McKenzie.

Journal of Pathology and Bacteriology, Cambridge

January, XVIII, No. 3, pp. 305-444

18 Malakoplakin of the Bladder and Kidneys. S. McDonald and W. T. Sewell.
19 Technic of Cultivating Adult Animal Tissues in Vitro, and the Characteristics of such Cultivations. A. J. Walton.
20 *Experiments on Hemolytic Icterus. J. W. M'Nee.
21 Congenital Aneurysm in Young Rabbit. W. H. Harvey.
22 *Arsenious Acid-Glycerin-Gelatin ("Arsenious Jelly") Method of Preserving and Mounting Pathologic Specimens. S. Delépine.
23 Water Storage and Its Advantages. A. C. Houston.
24 *Typhoid Bacilluria: Description of Certain Atypical Colityphoid Bacilli Found in Urine in Enteric Fever. A. Patrick.
25 *Standardization of Bacterial Vaccines by Wright, Hemocytometer and Plate Culture Methods. E. Glynn, W. Powell, A. A. Rees and G. L. Cox.

20. Experiments on Hemolytic Icterus.—There is no doubt in McNee's mind that after removal of the liver, in geese poisoned with AsH, no marked icterus occurs. The weak icterus which occurred in some of his experiments after removing the liver, he believes must depend either on the functional activity

of the spleen and bone-marrow, or on continued activity of the small piece of liver tissue left behind the vena cava. The reason why no marked icterus follows extirpation of the liver is not that the liver cells have been removed, but depends on the removal of the tissue enclosed within the liver which breaks down hemoglobin, namely, the endothelial cells of v. Kupffer. These cells have, at any rate, to do with the first phase in the production of bile, since they split off the iron part of the hemoglobin molecule and set free the pigment portion.

Neither from the experiments of Minkowski and Naunyn, nor from his own, can McNee draw a definite conclusion that a true hemolytic icterus cannot occur at all. On the contrary, the histologic appearances, especially the proliferation and desquamation of the Kupffer cells, their circulation in the blood-stream, and their destruction there, speak strongly in favor of the occurrence of an icterus without any action of the liver cells at all. The argument that when the liver is removed the homologous endothelial cells in the spleen and marrow do not take up the work is met by an extreme smallness of these latter organs in birds, and the short duration of the experiments.

An important question McNee says is how far these conclusions arrived at by experiments on geese can be applied to human pathology. Experiments certainly show that the structure of the liver is different in birds from that in higher animals. Quite apart from the relative difference in size of the organ in birds, there is in them a very special iron metabolism in the liver, with which, not the liver cells but the endothelial cells lining the vascular capillaries, have to do.

The appearances in a hemolytic icterus induced by toluylendiamin in dogs are not in any essential feature different from what he has observed in geese. The chief point of difference is that normal structure in dog's liver is different from that of birds. In dogs the endothelial Kupffer cells are much less numerous, and normally give no iron reaction. Thus in dogs the liver does not seem to be so directly associated with the iron metabolism as it is in birds. It is likely, McNee suggests, that the spleen in higher animals has taken on this function. But in icterus the endothelial cells of the dog's liver show changes quite similar to those found in geese, namely, phagocytosis of red corpuscles, disintegration of them and appearance of a diffuse iron reaction in the protoplasm. The cells being much fewer in number, these appearances are not so prominent and readily recognized.

In the spleen the changes seen in dogs and geese during icterus are also similar, but it has been sufficiently emphasized already how much larger an organ the spleen is comparatively in higher animals than in birds. In the lymph-nodes of dogs the changes are also very marked, and of a similar nature to those found in the spleen. In geese it was generally a matter of extreme difficulty to find lymph-nodes at all, and hence no observations were made on them. Taking all these points into consideration, it seems to McNee quite probable that, with modifications depending on the different importance of the spleen all that he has suggested in connection with the etiology of hemolytic icterus, from his experiments on geese, can be applied to higher animals and to man.

22. **Preserving Pathologic Specimens.**—The fixing agents which have given Delépine the best results are a 2 per cent. watery solution of bichromate of potash and a 4 to 8 per cent. watery solution of formaldehyd. To both these fixing and hardening reagents sulphate of soda may be added, so as to bring the specific gravity of the solution up to 1.024 to 1.028. These solutions allow one to give to the object the consistency suitable for cutting it into slices or for carrying out of necessary dissections; they do not affect the transparency of membranes, of colloid, or of mucous products; they do not alter, materially, the appearances of fat, muscular tissue, fibrous tissue, bone, etc. With hemoglobin they both produce insoluble compounds which have a color resembling closely the normal color of that product after passage of the fixed tissues through alcohol and embedding in "arsenious jelly."

The bichromate method has a serious disadvantage, owing to the fact that when the chrome salt is not entirely removed by long washing after hardening, a green discoloration is gradually produced. This difficulty is easily overcome when very thin slices of organs are treated, and Delépine has kept sections prepared by the bichromate method twenty-five years ago which have not altered in appearance. In the case of whole organs or thick sections, formaldehyd solution is better; it is also applicable to thin sections.

The method which Delépine now generally adopts is as follows: (*a*) Fixing Solution: Liquor formaldehyd (40 per cent. solution), 100 c.c.; water, 900 c.c.; to which may be added sulphate of soda, 20 gm. The specimens are left in this solution for from three days to two weeks, according to thickness. (*b*) Alcohol (80 to 90 per cent.). The specimens are left in this fluid until the color has returned as nearly as possible to its original tint. (*c*) Arsenious Acid Glycerin Fluid: Arsenious acid solution (made by boiling an excess of arsenious acid in water for two hours, and allowing the fluid to stand for twelve hours), 400 c.c.; pure glycerin, 600 c.c. The specimens are transferred from the alcohol to this solution, where they must be kept for one or two days at least. (*d*) Arsenious Acid Glycerin Jelly (formula for about 8 liters): (1) Coignet's gelatin (Gold label), 425 mm.; arsenious acid, saturated watery solution (see *c*), 1,500 c.c.; the dry gelatin, thoroughly cleansed, is added to the hot arsenious acid solution, in which it should be entirely dissolved in less than half an hour. (2) Hot arsenious acid jelly (see 1), 1,925 c.c. (say 2,000). Pure glycerin (hot), 5,760 c.c. (say 5,800). The two are mixed together and allowed to cool to about 20 C., then the white of six eggs and their broken shells are added and mixed thoroughly with the mass. The mixture is brought again to nearly boiling-point to coagulate the albumin, and is maintained at this temperature for two hours.

The hot fluid is strained through flannel and then filtered through filter paper, the temperature of the fluid being kept at about 50 C. This takes from one to three days. This medium is absolutely transparent, and when set does not melt in the highest summer temperature.

24. **Atypical Colityphoid Bacilli in Urine in Enteric Fever.**—It was found by Patrick during the investigation of bacilluria in men suffering from enteric fever, that in six cases out of seventeen the bacilli were not typhoid bacilli, but members of the typhoid-coli group not previously described. *B. coli* did not occur in any of the seventeen cases. In seven instances of bacilluria in women with enteric fever, on the other hand, the bacillus present was found, in all but one, to be *B. coli*. These atypical bacilli appeared in the urine, on the average, rather after the date for typhoid bacilluria, and persisted for quite a short time, in three instances for one day only. Their appearance was not attended by any constitutional disturbance, and in general the cases resembled ordinary cases of typhoid bacilluria.

These bacilli, though practically unaffected by artificial anti-typhoid serum, were agglutinated in varying degrees by the serum of the patient from whom each was isolated, in one instance to a greater extent than was the stock typhoid bacillus by the same serum. The six bacilli were stored on agar slopes at a temperature of about 6 C., and on re-examination a year later were found to have acquired greater fermentative powers with regard to certain sugars. This property has usually been described as developing by continued growth and subculture of an organism in a solution of the sugar, but with these bacilli the power, though afterward increased by subculture, developed in many instances spontaneously.

25. **Standardization of Bacterial Vaccines.**—The most scientific method of enumerating bacteria according to these authors is in some form of hemocytometer chamber. An optically plane cover slip must be used with such apparatus, for it is recognized as essential when counting blood, and is still more essential when counting bacteria, where accuracy is of greater importance. Owing to the small free working distance of oil-immersion lenses, most optically plane cover slips are too thick. A weak solution of carbol thionin was found to be the best diluting and staining fluid.

Journal of Tropical Medicine and Hygiene, London

March, XVII, No. 5, pp. 65-80

26 *An Intestinal Protozoal Parasite Producing Dysenteric Symptoms in Man. A. Castellani.

26. Intestinal Protozoal Parasite Producing Dysenteric Symptoms.—In three cases presenting dysenteric symptoms Castellani observed a peculiar large protozoal parasite which most probably was the cause of the condition. In all three cases the clinical symptoms were those of an ordinary mild type of dysentery, either amebic or bacterial. The onset was rather abrupt with severe abdominal pain, tenesmus and diarrhea, with stools containing muco-pus and blood. The motions soon lost any trace of fecal matter and consisted only of muco-pus and blood.

In all cases the microscopic examination showed absence of löschiae, cercomonads, trichomonads, balantidia and ova of worms; instead several large motile parasitic bodies were seen, rather elongated motile bodies, which on superficial examination gave the impression of being very large flageliates moving about. On close examination, however, no flagella could be detected. The parasitic bodies are large, elongated or oval; one extremity, the one which in stained preparations appears mammillary, is, so to speak, shaken by a peculiar, extremely frequent, vibrating movement, which makes one suspect the presence of flagella or an undulating membrane or cilia. Neither in fresh preparations nor in stained preparations has Castellani been able to detect flagella or cilia. The protoplasm has the same appearance all over the body of the parasite, presenting numerous roundish vacuoles, none of which are contractile. No distinct nucleus is evident, and there is apparently no distinct differentiation between ectoplasm and endoplasm. The parasite does not emit pseudopoda like an ameba, in fact, the changes in shape of the body of the parasite are slight, and very similar to those slight changes in the shape as found in flagellates, such as *Trichomonas hominis.*

The parasites move about fairly rapidly, though not so quickly as cercomonads or trichomonads; how motility is produced it is difficult to say. No pseudopoda are protruded and the body of the parasite shows only slight changes in shape. The anterior portion, as already stated, shows extremely rapid vibratory movements, but no flagella or cilia are seen, nor apparently, a definite undulating membrane, nor has Castellani been able to satisfy himself that there is emission of filiform pseudopoda. Attempts at cultivation have failed. Castellani is inclined to consider the parasite to represent a new genus and species, and as a temporary generic term, suggests the term *"entoplasma."*

Lancet, London

March 7, I, No. 4723, pp. 659-730

27 Glycosuria and Albuminuria of Adolescents. J. F. Goodhart.
28 Infantilism. H. Gilford.
29 *Morbid Anatomy of Tuberculosis in Man. (Concluded.) T. Shennan.
30 Significance of Diabetic Family History in Life Assurance. O. May.
31 Acute Suppurative Appendicitis Complicated by Gangrene of Ileum. B. Hughes.

29. Morbid Anatomy of Tuberculosis in Man.—In Scotland Shennan says the maximum death-rate from tuberculosis occurs during the 25 to 35 age period; in England during the 35 to 45 period. The maximum percentage death-rate from tuberculosis calculated on the number of deaths from all causes, at each age period, occurs in the female during 15 to 20 age period, and in the male during the 20 to 25 age period. The percentage of deaths from tuberculosis in females during the 15 to 20 age period is 52.69. The death-rates from tuberculosis in different towns and cities in Scotland bear no clear relationship to the number of inhabitants or to the density of population. Therefore, Shennan concludes that other factors must be involved. Hypersensitiveness due to a primary infection he thinks is probably of great importance in relation to reinfections. Reinfections arise not necessarily from a previous focus in the body, but must frequently be new infections from without.

The majority of cases of tuberculosis of the lungs and their regional glands are the result of aerogenic infection. Retrograde infections do occur. There is no evidence in favor of a spread by direct continuity from the deep cervical glands to the lungs. The right lung and its regional glands are more often the seat of tuberculosis than the left. In children manifest tuberculosis of the lung is very frequently a sequel of tuberculosis of the bronchial glands. Little satisfactory is known of the factors which determine the localization of the disease in the lung. Chronic fibrocaseous tuberculous foci in the lungs and caseation of the related bronchial glands may be caused by separate infections. In Scotland bovine infections in childhood are commoner than in most other parts of the world. The relative frequency with which bovine or human infections occur in any given organ or tissue, and the differing incidence of these infections in different localities Shennan states depend on the relative general frequency of infections with these two types of the tubercle bacillus. This differs in different localities.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXIII, No. 2, pp. 1-12

32 Primary Carcinoma of Lung. Inada.
33 On Volvulus. M. Takayasu.
34 Sixty-Four Cases of Ileus in Kagoshima-Byoin. S. Asahara.

Journal de Médecine de Bordeaux

February 22, LXXXV, No. 8, pp. 125-138

35 Industrial Accidents to the Head Aggravating Incipient Paralysis, and Question of Workmen's Compensation. J. Vitrac and H. Verger.

Journal d'Urologie, Paris

February, V, No. 2, pp. 121-246

36 *Hematuria with Appendicitis. G. Nové-Josserand and H. Fayol.
37 High Frequency Currents in Local Treatment of Tuberculosis of the Bladder. M. Heitz-Boyer.
38 *Determination of Tubercle Bacilli in the Urine. E. Gautier.
39 *Bladder Stones in Mohammedans. (Lithiase vésicale primitive de l'enfant et de l'adulte chez les musulmans de l'Afrique du Nord.) J. Coudray.
40 Importance of the Ultramicroscope in Diagnosis of Syphilis in Early Stage. Lévy-Bing.

36. Hematuria with Appendicitis.—Three personal cases are reported and twenty-eight from the literature are reviewed; the diagnosis may be difficult when the appendicitis is in a torpid, chronic stage. The hematuria may not appear until just after the appendix has been removed, but it generally comes on with the stormy onset of acute appendicitis. Hematuria of appendicitic origin is generally brief but intermittent, and the appendix is usually found adherent to the ureter and kinking it. This explains the inability to introduce the ureter catheter, which in turn leads to the erroneous diagnosis of a concrement in the ureter. In the hematuria with acute appendicitis, the appendix is often found stretching backward and upward and the kidneys are the seat of intense congestion. This reflex congestion in the kidneys throws light on the mechanism of hematuria secondary to appendicitis, as both the appendix and the ureters are innervated from the abdominal sympathetic.

38. Tubercle Bacilli in the Urine.—Gautier declares that the Ziehl-Neelson technic may be regarded as absolutely reliable for tubercle bacilli in the urine provided the decoloration is done with extreme care with 33 per cent. nitric acid and with alcohol. The method requires much patience, long centrifuging, with plenty of fluid, and the slides must be examined all over. If the first examination gives negative findings, the procedure must be repeated with urine voided a few hours later. If a specimen stained with methylene blue shows red corpuscles, degenerated polynuclears, but no microbes, the search for tubercle bacilli must be resumed with renewed energy. The findings in twenty-eight cases are briefly summarized.

39. Bladder Calculi in Northern Africa.—Coudray lists the brief history of ninety cases in Mohammedans in northern Africa, including fifty children. The mortality was 11 per cent. but among the adults alone it was over 17 per cent. The first sign of the trouble in children is pain on micturition and sudden stoppage of the jet of urine. In men, the disturb-

ances are usually those accompanying chronic cystitis. As the patients are seldom seen until the lithiasis has caused more or less local disturbance, a suprapubic incision is generally necessary. A special advantage of this technic in this African region is that the calculus which is given the patient to take home is a most potent aid in winning the confidence of the native population, so that the operated send their friends for relief in an earlier stage.

Lyon Médical, Lyons

February 22, XLVI, No. 8, pp. 389-452

41 Neurasthenia with Involvement of the Meninges. C. Maurice.

Presse Médicale, Paris

February 21, XXII, No. 15, pp. 141-152

42 Mycosis in Man from Chalara: Two Cases. (La Chalarose.) H. Roger, A. Sartory and P. J. Ménard.

43 *Vaccine Therapy in Chronic Gonorrheal Arthritis. V. P. Sémionov.

February 25, No. 16, pp. 153-160

44 The Permanganate Test in Obstetric Cases. (La réaction de Moriz Weisz en obstétrique.) G. Keim and M. Vigot.

45 Improved Needle for Intravenous Injections. (Aiguille intraveineuse à obturation facultative.) R. Bayeux.

46 Reducing of Fractures. (La réduction en un temps des fractures de date récente.) D. de Frenelle.

43. **Vaccine Therapy of Gonorrheal Arthritis.**—Sémionov states that six patients treated by him in 1912 with polyvalent antigonococcus vaccine found their chronic gonorrheal arthritis very much improved. For a clinical cure from eight to twenty injections of the vaccine are necessary, small doses at first, not over 0.2 or 0.8 c.c., at intervals of four or six days, and then gradually increasing the dose to 0.8 up to 2 c.c. with seven-day intervals. The discharge from the genital organs may become more profuse under the influence of the vaccine, and it extremely rarely happened that the gonococci disappeared from the genital secretions under the influence of the vaccine. The vaccine may induce diarrhea but no other untoward by-effects were observed. The relief from pain is an important effect of the treatment, and the continued use of the vaccine brings the temperature down to normal. The benefit from the vaccine is generally so marked that it serves to differentiate the gonorrheal origin of the joint affection in dubious cases.

Revue de Médecine, Paris

February, XXXIV, No. 2, pp. 81-160

47 A New Function of the Vessel Walls: Transudation of Ferments. (Nouvelles sécrétions internes et nouvelle fonction des vaisseaux.) R. Lépine.

48 The Determination of Amino-Acid in the Urine after Giving Peptone as a Diagnostic Test in Insufficiency of the Liver. M. Labbé and H. Bith.

49 *The Antigen Reaction in Tuberculosis. (La réaction de l'antigène.) R. Debré and J. Paraf. Commenced in No. 1.

50 Nephritis and Hyperglycemia. A. Landau.

49. **The Antigen Reaction in Tuberculosis.**—Ordinarily in the complement-fixation reaction a known antigen is used to demonstrate the presence of antibodies in the blood or other body fluids. Debré and Paraf conceived the idea of using a known antibody to demonstrate the presence of an antigen in tuberculosis. A serum rich in antibodies was obtained by immunizing the horse against tuberculosis. The fluids used for examination are urine, sputum or exudates taken from local foci of tuberculosis. In cases where the bacilli themselves cannot be demonstrated, their products in the form of antigen may be thus demonstrated. They describe their technic in detail and tabulate the results in the examination of the urine from 155 patients. They conclude that the reaction is not only exact but of great practical value, its chief value being in differentiating tuberculosis of the urinary apparatus. If only one kidney is diseased the reaction is positive on that side and negative on the other. In chronic pulmonary tuberculosis it is generally negative. In acute tuberculosis it is positive. In nephritis it is positive if the condition is tuberculous in origin, otherwise negative. This reaction seems to be the only means for differertiating tuberculous from non-tuberculous orthostatic albuminuria. By its use a rapid diagnosis can be made of the tuberculous nature of pleural, peritoneal or joint fluids with tuberculosis, and in primary pleurotuberculosis it has given encouraging results in the examination of sputum and milk, but has not been satisfactory in the examination of cerebrospinal fluid or blood serum.

Semaine Médicale, Paris

February 25, XXXIV, No. 8, pp. 85-96

51 *Recurring Abdominal Colic in Children. (Douleurs abdominales et coliques ombilicales récidivantes chez les enfants.) L. Cheinisse.

Berliner klinische Wochenschrift

February 23, LI, No. 8, pp. 337-384

52 *Recurring Umbilical Colic in Children. II. Moro and J. K. Friedjung.

53 Cholera in Balkan Campaign. (Zur Diagnose und Therapie der Cholera asiatica.) R. Rosenthal.

54 *Keratin in Treatment of Cirrhosis of Liver. S. M. Zypkin.

55 *Tuberculosis, Bacillemia and Miliary Disease. E. Rautenberg.

56 Theoretical Explanation of the Abderhalden Reaction. U. Friedemann and A. Schönfeld.

57 Serum Sickness. (Zur Serumkrankheit.) F. C. R. Schulz. Concluded in No. 9.

58 Embryologic Study of the Blood. (Demonstration färbiger Mikrophotogramme nach Lumière zur vergleichenden Entwicklungsgeschichte des Blutes.) C. S. Engel.

59 *How Soon Can Patients Get Up After Operations? (Das Frühaufstehen nach Operationen.) W. Hofmann.

60 Serodiagnosis of Cancer and Tuberculosis. (Verwendung der Abderhalden'schen Reaktion bei Carcinom und Tuberkulose.) E. Fränkel.

51-52. **Recurring Abdominal Colic in Children.**—A communication on the subject of recurring colic in the region of the umbilicus was summarized in these columns recently, p. 971. The special features are the regularity of the attacks, that they are not accompanied by fever, and that the children thus affected are excitable and nervous, with unstable vasomotor system, and are being brought up injudiciously. Although the pains may suggest appendicitis, yet Moro does not regard the appendix as in any way responsible for them, while an ultimate cure can be brought about by diet and training, aided by suggestion. He cured the children completely in all his cases by a few suggestive measures such as painting the site of the pains with iodin, strapping it with plaster and giving belladonna or valerian or both internally. He has recently reexamined some of the children whom he had thus treated years ago, and found that the umbilical colic had never returned after his treatment. Most of the children are now in good health but some show signs of a general nervous instability. Küttner ascribes the whole trouble to the appendix, and has reported some cases in which a complete cure followed appendicectomy, but Moro asks what is the necessity for an operation when a few suggestive measures, application of electricity or strapping with plaster, answer the purpose equally well, as he shows by some new examples.

Friedjung states that he described the same set of symptoms in 1904 after a four-year study of these recurring colics in the umbilicus region. He attributes the trouble to hysteria. Differentiation of this manifestation of hysteria is important as it is speedily cured by appropriate treatment while treatment on the assumption of diastasis of the linea alba, entailing incarceration, is bound to fail as having no foundation in fact. The diastasis of the rectus muscles is a physiologic phenomenon in children. It is evident in about 63 per cent. of all children after birth and the diastasis and its frequency grow larger with increasing age. He reported thirty-seven cases of the kind then but remarks now that no one seemed to pay any attention to his article, and the syndrome has been "discovered" anew nine years later and ascribed to the appendix by one writer and to simple nervous excitability by another. Recovery is liable to follow any measure that impresses the little patient; appendicectomy, removal of adenoids or almost any therapeutic measure.

54. Summarized when it first appeared (in Russian). See THE JOURNAL, February 28, p. 740.

55. **Tubercle Bacilli in the Blood.**—Rautenberg reports clinical and experimental research which confirms anew the importance of the information to be derived from inoculation of animals in cases suspicious of tuberculosis and in which tubercle bacilli have been found in the blood. The findings with the microscope are unreliable.

59. **When Should Patients Be Allowed to Get Up after a Major Operation?**—Hofmann insists that in discussing

whether patients should be allowed to get up early after an operation or delivery, too little attention has been paid to the heart. The shock of the operation, the loss of blood and the anesthetic all cooperate to injure the heart muscle. This is the case even with a herniotomy or other small operation; and with local anesthesia the heart suffers from the operative shock and loss of blood. This injury of the heart can be detected and measured by the behavior of the pulse and blood-pressure before and after the femoral arteries are compressed by pressing on Poupart's ligament with the fingers. When the femoral arteries have thus been blocked in this way for from two and a half to five minutes, the blood-pressure in the finger runs up by 5 or 10 mm. mercury if the heart is sound or functioning normally, while the pulse persists unmodified or grows a little slower. If the heart is slightly incapacitated, the pulse and blood-pressure do not show much change. If the heart is seriously damaged, the blood-pressure drops while the pulse remains unmodified; if the heart is absolutely incompetent, the pressure drops and the pulse goes up. By this simple means it is possible to estimate the functional capacity of the heart before and after the operation and thus learn with precision to what lengths we can go. Of course if the heart has been seriously damaged, it is very hazardous to inflict such a strain on it as is involved in getting up soon after the operation. He cites a number of typical examples to confirm these statements. In one of the cases related the pressure and pulse before resection of the stomach had been 90 and 72 respectively; twenty-four hours after the operation the figures were 100 and 116, and after compression of the femoral arteries the pressure was 98 and then 90 while the pulse was 124 and then 132 by the end of two and a half minutes. The third day the pressure was found 115 and pulse 78; on compression of the femoral arteries the pressure kept at 115 but the pulse increased to 84 and 90. The heart was thus seen to have recuperated to a certain extent, and by the eighth day pressure and pulse were 80 and 78, and these figures were not modified by compression of the femoral arteries. That is to say, the heart behaved by the eighth day as it had before the operation, having required a whole week to get back to its condition prior to the resection. Hofmann has his patients exercise their limbs systematically while still in bed, and promotes the venous circulation with deep breathing, while he gives drugs to reduce the coagulability of the blood. By this means he wards off danger of embolism and heart failure. He does not approve of letting the patients get up before the eighth to the tenth day when the femoral-arteries sign described above points to danger.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

February 19, XVIII, No. 2, pp. 141-204

61 *Operative Treatment of Facial Paralysis of Peripheral Origin. D. G. Zesas.
62 *Cardiospasm and Fusiform Dilatation of the Esophagus. F. Geppert.
63 *Senile Osteomalacia. H. Schlesinger.

61. **Operative Treatment of Facial Paralysis of Peripheral Origin.**—Zesas has compiled from the literature seventy-three cases of chronic facial paralysis treated by nerve grafting. The results have been disappointing; no benefit was realized in over half the cases, especially when the muscles were already atrophied and had lost their electric excitability. Even in the cases regarded as successful, the improvement was meager and there were numerous annoying by-effects. Much better results have been obtained by plastic operations on the muscles; this technic has been applied in five cases to date, three in Roumania, by Gomoiu and Jianu; the other operations were by Lexer and Hildebrand. Zesas gives the particulars of the technic, as also of Busch's wire-loop and Stein's fascia-flap method. The latter takes a strip of fascia from the thigh, 20 cm. long by 2 cm. wide, and works it down through the cheek to the corner of the mouth and back again, thus suspending the sagging corner of the mouth in a sling hanging from the malar bone. Three weeks previously a small amount of paraffin had been injected under the skin at the corner of the mouth, to give a hold to the loop of fascia when it was passed around it. The outcome of the operation was satisfactory and has persisted unimpaired for a year to date in the case reported.

62. **Cardiospasm and Dilatation of the Esophagus.**—Geppert's article is a comprehensive study of 70 cases from the literature and 1 unpublished case. The patients were 39 men between 20 and 60; 21 women between 20 and 30; 3 approaching 45, and 8 children between 9 and 16. When treatment was commenced before there had been much debility from lack of sufficient food, 23 per cent. of the patients were cured by appropriate treatment, and 50 per cent. improved. The measures useful in treatment are mainly dietetic, rinsing out the esophagus with astringents, giving atropin and narcotics, feeding through a tube, and efforts to dilate the stenosis mechanically from above or below. Other operations that have been applied are resection of the lower segment of the esophagus or its enlarged wall; plastic operations on the cardia, and anastomosis between the stomach and esophagus. This compilation supplements Neumann's series of 70 cases in 1901. The details are tabulated.

63. **Senile Osteomalacia.**—Schlesinger analyzes fifty articles on this subject, remarking that the apparently regional occurrence of senile osteomalacia is probably due to the greater diagnostic skill of certain physicians. In a few cases on record, true generalized osteomalacia followed a local trauma. It seems to occur with unusual frequency among the insane, especially with dementia praecox, although there may be an interval of thirty-six up to sixty years after the first symptoms of the dementia. Demange has reported a case of osteomalacia in a man of 40 after trauma; he recovered, but it returned anew at 80. H. Curschmann has encountered at Mainz fourteen cases in five years. The affection generally begins with intense pain in the sacral region and throughout the skeleton of the trunk, gradually spreading over the whole body. At first there may be pain only on pressure, then with movement, and the patient notices that he has grown shorter. A characteristic gait develops, with or without contracture and changes in the pelvis.

The development may be rapid. Sternberg had one patient who became bed-ridden in a few weeks after the first symptoms. In contrast to its abrupt beginning, the chronic course may be long in developing and ten or twenty-five years may elapse before serious disturbances result. In differentiation, multiple tumors of the bones must be excluded. Multiple myeloma is more frequent in elderly men, and it may be accompanied by two symptoms seldom, if ever, encountered with osteomalacia, namely, albumosuria and signs of compression of the spinal cord. Other bone tumors entail progressive cachexia and anemia, and these are not encountered with osteomalacia. At first it may be difficult to decide whether the trouble is not a simple neuralgia. Schlesinger reports the details of four cases in which the osteomalacia had developed entirely without symptoms and was a necropsy surprise. Intermittent claudication may accompany senile osteomalacia. Curschmann noticed a tendency to vascular cramps in the hands and feet in five out of six cases, subsiding entirely as the osteomalacia was brought under control. Phosphorus seems to be the sovereign remedy, either in pills of 0.0005 gm. twice a day or a teaspoonful twice a day of a mixture of 0.01 gm. in 100 gm. of cod-liver oil. Curschmann has reported complete recovery under this treatment, but Schlesinger has only succeeded in obtaining marked improvement.

Deutsches Archiv für klinische Medizin, Leipsic

CXIII, Nos. 3-4, pp. 269-440. Last indexed Feb. 7, p. 497

64 Simulation of Heart-Block. (Ueber vorgetäuschten Herzblock.) L. Roemheld.
65 Analysis of the Electrocardiogram by Means of the Roentgenkymograph. T. Becker.
66 Clinical Value of Determining the Concentration of the Blood. W. H. Veil.
67 Nitrogen and Mineral Metabolism in Scleroderma. (Stickstoff- und Mineralstoffwechseluntersuchungen bei Scleroderma diffusum.) A. Elfer and H. Geber.
68 *Testing the Functional Capacity of the Heart. (Zur Funktionsprüfung des Herzens.) J. Kahn.
69 Antipyretics. (Zur Kenntnis temperaturherabsetzender Substanzen.) H. von den Velden.

70 *Diagnosis of Uremia by Indican Content of Blood Serum, Transudates and Exudates. G. Dorner.
71 Temperature Curves in Leishman's Anemia in Child n. G. Caronia.
72 Growth and Perforation of Aneurysms. P. Baetge.
73 *Effect of Hypophysis Extract on Human Blood Pressure and on Growth of Young Animals. E. Behrenroth.
74 Intra-Abdominal Pressure and the Distribution of Blood with Enteroptosis. E. Schulz.

68. **Testing Functional Capacity of the Heart.**—Kahn recommends v. Waldvogel's method of testing the heart function by measuring the systolic blood-pressure as the patient reclines, and then again as he stands. This method gives dependable results, is simple and can be used by any physician at the bedside, while most other methods are complicated and the results not uniform. Tables and curves are given showing the results in over fifty cases.

70. **Diagnosis of Uremia by Indican in the Serum.**—Dorner gives twenty-six case histories which confirm his belief that the appearance of indican in the blood serum is indicative of uremia. If it is present in large quantities in the blood, it may also be demonstrated in the pleural effusion or ascitic fluid, but not in the cerebrospinal fluid. It does not seem to have any toxic effect. In uremia caused by lack of functioning kidney tissue, there may not be indican in the blood. In marked indicanuria without kidney disease, there is not much indican in the blood serum. It is not certain that the liver is the source of the indican; it is probably partly formed by the kidney. The appearance of indican in the blood or transudates is generally a sign of approaching death, but patients with a slight indican content may improve.

73. **Effect of Extract of Hypophysis on the Blood-Pressure.**—Behrenroth found that the effect of hypophysis extract on the human blood-pressure was by no means uniform, and did not correspond to the striking results obtained in animal experimentation. His results confirm those of von der Velden in his research on the effect of hypophysis extract on the human kidney. The latter found there was no constant rise in blood-pressure and no change in the pulse-rate. The respiration-rate was not altered and there was no special effect on the general condition.

Deutsche medizinische Wochenschrift, Berlin

February 19, XL, No. 8, pp. 369-416

75 *Embolism in Pulmonary Artery. (Behandlung der Lungenarterienembolie und des Lungeninfarkts.) Grober.
76 *The Spleen as a Factor in Anemia. (Bedeutung der Milz bei anämischen Zuständen in Bezug auf Pathogenese und Therapie.) W. Türk.
77 *Splenectomy in Blood Diseases. (Die Blutkrankheiten und ihre chirurgische Behandlung.) R. Mühsam.
78 Febrile Intestinal Syndrome from the Bacillus Fecalis Alcaligenes. H. Straub and W. Krais.
79 *Neurasthenia in Lead Poisoning. S. Hirsch.
80 Metabolism of Cholesterol. (Zur Physiologie und Pathologie des Cholesterinstoffwechsels.) Bacmeister and Havers.
81 Subconjunctival Injection of Hypotonic Salt Solution plus Instillation of Sedative Cures Subconjunctival Extravasation and Suggillation in the Lids. T. Mohr.
82 Technic for Local Electric Bath. (Heilwirkungen von Licht- und Wärmestrahlen.) C. Brill.
83 The Prophylaxis of Tuberculosis in Infancy. Edler. Commenced in No. 7.

75. **Pulmonary Embolism and Infarct.**—Grober remarks that generally the exertion which was followed by the embolism was one in which the abdominal muscles were strained, especially turning over without help in bed during convalescence from a major operation, or movements of the arms or legs. Physical rest is therefore the main point in warding off further embolism if the patient has survived the first symptoms. The danger of embolism is an argument against allowing patients to get up soon after an operation on the pelvis; if a thrombus has already formed it is liable to be swept away by any physical exercise. The formation of new thrombi must be carefully prevented, the circulation promoted, and inflammation combated with ice and antiseptic dressings, or by resection of the inflamed segment of the vein if nothing else will answer. It often happens that the embolism is the work of a single loose portion of the thrombus; the rest may cling so tight that there is no further embolism. Camphor or ether may be necessary to tone up the pulse; the blood-pressure thus heightened may open new routes for the blood in the lungs. If the patient survives the first hour, his pain and distress must be relieved with morphin. This is particularly useful in case of embolism in the smaller branches of the pulmonary artery which often is accompanied by intense pain in the pleura. This can be combated with ice or mustard, cold water bandaging or wet cupping. These measures may relieve pleural pain from any cause, frequently rendering morphin unnecessary.

76. **The Spleen in Anemia.**—Türk discusses the present state of our knowledge in regard to the connection between the spleen and the blood-producing organs, also the clinical pictures which result when the spleen is pathologically active, and under what conditions we may expect benefit from removal of this source of active disturbance. He has encountered several cases in which there could be no doubt that a tumor in the spleen was responsible directly or indirectly for the production of toxins which had a decidedly injurious action on the bone marrow. The consequence of this toxic functional disturbance in the blood-producing apparatus was a kind of anemia with none of the features of hemolysis. The removal of the spleen does away with the source of the toxins in this case. The benefit from splenectomy in Banti's disease—which seems to be an anemia of this type—confirms this assumption.

The spleen may become enlarged in consequence of an old pylephlebitis which may be traced to infection of the umbilicus soon after birth. This may lead to hemorrhages from the enlarged veins in the gastro-intestinal mucosa, with severe anemia as the result. He has encountered a number of cases of this kind since the one he reported in 1902; there is nothing in the clinical picture or case history here to suggest that any toxic injury of the bone marrow may be responsible for the anemia or any process of hemolysis. Removal of the spleen under these conditions would be absolutely futile while it would be fraught with grave danger on account of the extreme congestion in the splenic vein. When there is excessive destruction of blood in the spleen-liver system there is no bile in the urine, but bilirubin is found in the blood, urobilin in large amounts in stools and urine and the bone marrow shows signs of hyperfunctioning. This familial hemolytic jaundice may in one member of the family cause merely enlargement of the spleen, without jaundice or much anemia; another may have the enlarged spleen, anemia and urobilinogenuria but no jaundice, and a third may have all the above but with less fragile reds. The same symptoms characterize the type which develops without any known inherited tendency. In one such case it came on in childhood after a septic scarlet fever. The exacerbations may resemble gall-stone trouble, and the anemia may assume the pernicious type during the exacerbations; they are inclined to be more abrupt than in the familial type. In all these hemolytic groups the removal of the spleen has proved the means of curing most if not all of both subjective and objective disturbances; only occasionally the reds may still display a certain fragility.

The results of splenectomy in such cases point unerringly to the spleen as the cause of the trouble, and show that any symptoms on the part of the liver can be readily explained as secondary to the spleen affection. This suggests that possibly splenectomy might help in morbid conditions in which the liver seems to be playing the more important rôle, and in fact this has proved to be the case with Hanot's cirrhosis of the liver with hypertrophy and recurring paroxysmal attacks resembling gall-stone mischief, but without anemia. Eppinger has reported several cases of a practical cure after splenectomy, and full earning capacity restored after long, serious illness for periods up to ten years.

With pernicious anemia, splenectomy induces a marked change for the better, but the blood does not return to the normal type; the patients are much improved but in none of the seven cases in which splenectomy has been done for pernicious anemia during the last ten months has the blood-picture returned to normal. But a remarkably rapid and thorough-going remission may almost be counted on in apparently almost moribund patients; it acts more rapidly than

arsenic and as promptly as thorium, but it does not seem to remove the cause of the pernicious anemia. The morbid spleen functioning is merely one link in the chain of factors causing the disease, but by removing it we make a gap in the chain and even this is great gain.

77. **Operative Treatment in Banti's and Other Blood Diseases.**—Mühsam has found records of 29 European cases of Banti's disease treated with splenectomy; 5 of the patients died, 3 from infection and one from pneumonia or gastro-intestinal hemorrhage. All agree that done in time the operation can save the patient's life. The results from splenectomy have been surprisingly fine in the 14 cases on record in which it was done for hemolytic jaundice. He has a personal experience with 11 cases of pernicious anemia treated with splenectomy; 3 of the patients died, one young man and one young woman succumbing to the excessive hemorrhagic tendency accompanying the pernicious anemia. Two have died since, one from myelitis; the other patients are in good health to date. The blood-picture has improved in all but has not become normal. The patients gained materially in weight and strength.

79. **Neurasthenia from Lead Poisoning.**—Hirsch gives the details of seven cases out of a large number in his experience in which lead poisoning was responsible for affections of the central nervous system, mostly merely subjective disturbances. This lead neurasthenia, he says, is far the most frequent manifestation of lead poisoning, but the lack of specific characteristics has led to its neglect hitherto. He knows of no instance in which the neurasthenia has progressed to actual brain disease. Violent and protracted headache was the predominant symptom in four cases, and vomiting in the morning in three. Violent abdominal pain is also frequent, differing in many respects from lead colic. The patients may become depressed, irritable and timid. Except for exaggerated knee-jerk, the line on the gums, tremor of the hands, and dermographism, there were no somatic signs of trouble, and these were not always present. His article is based on considerable personal experience and the records of two painters' organizations, including nearly 2,000 individuals.

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January, CXXVI, Nos. 3-4, pp. 213-428

84 *Post-traumatic Ossification in the Elbow. E. Lehmann.
85 Chronic Peritonitis with Adhesions. N. Kron.
86 Serodiagnosis of Staphylococcus Surgical Affections. (Verwendbarkeit der serologischen Staphylokokkenreaktion in der chirurgischen Diagnostik.) F. Rost and Saito.
87 Painful Pronation. (Subluxatio radii perannulare.) P. Erlacher.
88 Congenital Cyst in Side of Neck; Two Cases. (Zur Kasuistik und Therapie der angeborenen seitlichen Halsfistel.) Nobe.
89 Appendicitis; 295 Cases with 7 per cent. Mortality. H. Berger.
90 Prolapse of Intestine through Artificial Anus. (Ueber Darmvorfälle aus Kotfisteln und Kunstaftern, insbes. Zweihörnige.) M. Schmidt.

84. **Posttraumatic Ossification in the Elbow.**—Treatment gives poor results when the ossification has progressed to the point of causing severe functional disturbance. This renders prophylactic measures all the more important, especially keeping the arm quiet after the accident and applying moist heat and similar measures to promote the absorption of the extravasated blood in the region. Vigorous massage is of course contra-indicated as repose of the region is the main thing. Experiences with ossifying myositis have shown that it may be possible in this way to ward off ossification and induce the retrogression of circumscribed infiltrations which might otherwise lead to ossification. Puncture may aid in certain cases. Thiosinamin might be given a trial, possibly injected directly into the joint, although the danger must not be forgotten that this drug may loosen up and release hitherto encapsulated bacilli in some old focus in the lungs or elsewhere. The ossification process may retrogress spontaneously, so that operative treatment is called for only when there is severe functional disturbance or pressure on nerves. In Lehmann's 37 cases there had been a fracture in 11, merely dislocation in 20 and a possible fracture in 6. The cases are analyzed in detail with the Roentgen-ray findings. The patients were all soldiers and during the same period, 1902-1910, only 18 cases of ossification in other joints were encountered. In a further series of 6 cases the ossification in the elbow was clinically certain but not confirmed by roentgenoscopy.

Medizinische Klinik, Berlin

February 22, X, No. 8, pp. 313-356 and Supplement

91 *Mental Derangement with Internal Diseases. A. Pilcz.
92 Importance of Calcium for the Growing Organism. F. Lust.
93 Evolution of a Traumatic Neurosis. H. Stursberg.
94 Multiple Tumors. F. Venulet.
95 Bouillon Cubes. (Bouillonwürfel.) J. Schlesinger.
96 Subsidence of Symptoms in Knee-Chest Position when Retroversion of the Uterus Can Be Cured by Fixation. H. Arndt.
97 Anatomy of the Internal Ear. (Ueber das schallempfindende Endorgan im inneren Ohr.) J. Zange.
98 Present Status of Blood Diseases. (Neuere Forschungen und therapeutische Bestrebungen auf dem Gebiete der Blutkrankheiten. I.) F. Port.

91. **Psychoses with Internal Diseases.**—Pilcz remarks that recent research and the new biologic reactions have confirmed more and more the assumption that mental derangement is not exclusively a matter of the mind but that the mental trouble is merely one part of the general process affecting the entire organism. The psychosis may be complicated with organic disease of the brain or meninges, but as a rule there is no parallelism between the severity of the mental disturbance and the severity of the infectious disease to which it is secondary. It is remarkable that diphtheria is so seldom accompanied by psychic disturbances, and the same may be said of tuberculosis except for the moods and changes in character which may be encountered with almost any wasting disease. Optimism is common, while delirium and imbecility as a consequence of tuberculosis are extremely rare. When the patient refuses to eat, he should be fed by gavage, not delaying for more than three or four days. Insomnia and agitation are best combated by the continuous bath and bed rest, after the bowels have been thoroughly emptied and attempts have been made to sterilize them with creosote, the salicylates, menthol, etc., supplemented by saline infusion. If sedatives are absolutely necessary to combat insomnia, special care must be paid to intestinal functioning thereafter.

The psychosis or confusion liable to come on with chorea minor generally subsides under symptomatic treatment, but in the chorea of pregnancy it shares the grave prognosis of the latter. When conditions are becoming aggravated, the pregnancy should be terminated without delay. He discusses further the mental derangement which may accompany exophthalmic goiter and myxedema; in either case it yields to the specific treatment for each. Tetany has sometimes been accompanied by hallucinations and stupor, and symptoms suggesting tetany have been observed in catatonia and other actual psychoses. With extremely severe neuralgia, the pain may induce a condition tending to delirium and morbid dread. This neuralgic dysphrenia subsides as suddenly as it came on when the attack of neuralgic pain is over. An injection of morphin may work wonders. The psychoses observed with diabetes are generally mere casual coincidences but sometimes the condition improves or becomes aggravated parallel to the rise or drop of the output of sugar. Psychoses have also been observed in leprosy, osteomalacia, trypanosomiasis and hypophysis disease. In conclusion Pilcz discusses the influence on mental derangement which may be exerted by an intercurrent febrile affection. Many instances are known in which the beneficial influence of such an occurrence survived the intercurrent fever and persisted so that persons deemed incurably demented have been able to have their legal rights restored. The febrile affections which seem most potent in this line are those from streptococci and staphylococci. This experience, he adds, is the basis for Wagner von Jauregg's method of treating progressive paralysis with tuberculin, given to induce febrile reactions; it already has a record of highly satisfactory results. Pilcz suggests that dementia praecox may possibly prove amenable to this form of treatment as also curable psychoses which are threatening to become chronic. By the time patients in such cases reach the asylums it is generally too late for treatment of such psychoses to be effectual. The fate of the patient therefore lies in the hands of the general

practitioner who sees him first, and therapeutic efforts along the above lines may yield unexpectedly satisfactory results.

Münchener medizinische Wochenschrift

February 24, LXI, No. 8, pp. 401-546

99 Improved Technic for Serodiagnosis. (Spezifische Wirkung der sogenannten Abwehrfermente.) E. Abderhalden.
100 Proteolytic Ferment in Blood in Inanition. (Auftreten eiweissspaltender Fermente im Blut bei vorgeschrittenem Hunger im Stadium der "Stickstoffsteigerung aus Fettschwund.") E. Heilner and F. Poensgen.
101 *Staphylococcus Sepsis; Eight Cases. L. Jacob.
102 *Thyroid Insufficiency in relation to Nervous Disturbances and Spastic Constipation in Women. E. Sehrt.
103 *Erysipelas as a Factor in Diabetes. A. Welz.
104 Anemia of Pregnancy. (Zur Kenntnis der Schwangerschaftsanämie.) P. Jungmann.
105 A Single Inhalation of Volatile Oil of Mustard Relieves Toothache and Earache. (Ein sehr rasch und sicher wirkendes Riechmittel gegen Zahnschmerzen und Ohrenschmerzen.) A. Schwarz.
106 Persisting Thyrolingual Duct as Cause of Cough. (Hustenausgelöst vom persistierenden Ductus lingualis.) A. Strauch (Chicago).
107 Polyneuritis with Korsakoff's Psychosis after Salvarsan, Terminating Fatally. R. Pürckhauer and T. Mauss.
108 Grape Juice. (Traubensaft als Nahrung und als Heilmittel.) G. Bender.
109 Technic for Serodiagnosis and Its Value. (Verwertbarkeit des Dialysierverfahrens bei klinischen und serologischen Fragestellungen.) H. Oeller and R. Stephan.
110 Present Status of Resuscitation of the Apparently Dead. (Scheintod und Wiederbelebbarkeit im Lichte der neuen Forschungen.) F. Kuhn.

101. **Staphylococcus Sepsis.**—Jacob has encountered in the last two years eight cases in only three of which the course was of the classic type with osteomyelitis, a paranephritic abscess and severe bacteriemia. In the others, the primary focus was in the tonsils, the intestines or bronchiectasia, and there was no suppurative metastasis which is the rule in 95 per cent. of such cases. Two of the patients died. This experience teaches the importance of bacteriologic examination of the blood and urine in dubious febrile cases, and shows that if it were more of a routine procedure mild forms of sepsis might be discovered oftener.

102. **Thyroid Insufficiency in Connection with Nervous Conditions and Spastic Constipation in Women.**—Sehrt reviews nine cases of nervous disturbance accompanying hemorrhagic uterine affections, which he ascribed to defective functioning of the thyroid and treated with thyroid extract. Also eight cases of nervous disturbance accompanying retarded development of the internal genitals. The benefit from the thyroid treatment was constant and marked, the results so striking that he thinks they can be explained only on the assumption that the neuralgias and other nervous disturbances were due to excessive irritability of the nerve terminals which had gradually developed under the influence of protracted auto-intoxication from lack of normal thyroid functioning. This auto-intoxication may be the direct result of the thyroid deficiency or may be merely promoted and increased by it; in either event thyroid treatment has a distinct causal efficacy.

103. **Erysipelas and Diabetes.**—Welz reports a case in which a merchant of 52 convalescing from severe erysipelas of the face with slight participation of the heart, kidneys and liver in the infection, developed diabetes which gradually subsided again so that the urine was free from sugar by the twenty-fifth day. It reached 5.8 per cent. at one time. In a second case the diabetes had come on likewise during convalescence from severe erysipelas of the face; the patient was a previously healthy man of 49. The erysipelas had kept him in bed for four weeks and the diabetes following it proved fatal by the end of the sixth month. Severe organic changes were evident in both pancreas and liver at necropsy. There must have been some congenital predisposition to diabetes in these cases, he thinks, which was fanned into a flame by the severe erysipelas; without it or its equivalent the patients might have escaped the diabetes.

Therapeutische Monatshefte, Berlin

March, XXVIII, No 3, pp. 157-228

111 *Gynecology and the General Practitioner. M. Traugott.
112 Standardization of Digitalis. (Physiologische Wertbestimmungen einiger Digitalispräparate.) A. Lehnert and O. Loeb.
113 Local Application of Caustics to the Interior of the Uterus. (Ueber intrauterine Aetzungen.) W. Zangemeister.
114 Automassage of the Abdomen. (Instrumentelle Bauchmassage.) S. Auerbach.
115 Almond Milk as Vehicle for Emulsions. (Eine neue Methode der Emulsionsbereitung für die Behandlung der Magendarmaffektionen der Kinder.) M. J. Breitmann.
116 *The Work of the Council on Pharmacy and Chemistry. (Der pharmazeutisch-chemische Ausschuss des Amerikanischen Aerztebundes.) W. A. Puckner (Chicago).
117 *The German Council on Pharmacy and Chemistry. (Die Arzneimittelkommission des deutschen Kongresses für innere Medizin.) W. Heubner.

111. **The General Practitioner and Gynecology.**—Traugott remarks that specialist skill may be necessary for minute examination by palpation for gynecologic operations and radiotherapy, but that the general practitioner often has it in his power to ward off gynecologic disease and to cure a vast number of gynecologic disturbances which are really of psychic origin or in which the disturbances from some organic lesion elsewhere are erroneously ascribed to the genital organs. The progress which has been realized in conservative gynecologic treatment of late years has been in the restriction of the use of local measures, curetting, cauterizing, massage, pessaries, hydrotherapy and electrotherapy. These measures are being used less and less and attention and treatment are being applied to the unstable nervous system as a whole. Dubois' method of psychotherapy has an extremely wide field of application in gynecology, and here the general practitioner reigns supreme. It offers a well-founded, causal treatment of the psychogenic functional disturbances which seem to be becoming more numerous every day. The confidence in the physician is the main factor in the cure, and it is immaterial for the Dubois method whether the physician is a specialist gynecologist, an alienist or merely the trusted family physician. This method utilizes the influence of the mind over the body, the reaction of somatic processes to mental impressions, and it seeks to correct the mental impressions and render them sound and wholesome. If the patient is once convinced that her "leukorrhea," her vaginism, her various pains in the genital region, etc., are merely the manifestations of an overexcitability of her nervous system which in turn is the consequence of a morbid mode of thought and life—once convinced that this is the case and that her genital organs are sound and are merely being played on by her irritable nerves, the patient learns to look on them with indifference, and lo, they disappear. Training her to rise above envy, grief, jealousy, worry, etc., teaching her to see things in their true perspective and develop a stoical habit of mind, free the mind from the old emotional strains and tempests. This soothes it, reduces its irritability and puts an end to the disorders which this entailed. Among the functional disturbances amenable to this treatment he cites disturbances of all kinds in menstruation and secretion; sensations of prolapse when all is in its normal place; pains of all kinds in the pelvic region, and sensory disturbances causing sensations of distention of the abdomen simulating a pregnancy. The innervation of the abdominal muscles may become so irritated that labor contractions may be set up and abortion be induced purely from psychogenic influences. Of course the indispensable prerequisite to successful psychotherapy is the exclusion of organic disease.

116. **The Council on Pharmacy and Chemistry of the A. M. A.**—Puckner describes the work and aims of the Council and relates what it has accomplished in this country and suggests how a similar work might be successfully carried on under the conditions prevailing in Germany.

117. **The German Council.**—Heubner describes the German commission founded in 1911 for a purpose similar to that of the Council of the A. M. A., but he laments that the work of the commission has met with so much passive or active resistance in and outside of the profession that the results accomplished to date do not repay in the remotest manner the efforts expended. The generals alone cannot win a battle, he declares; when the troops hang back or go the other way there is not much hope for a victory. He draws an impressive picture of the evils which the present intolerable conditions have bred.

Wiener klinische Wochenschrift, Vienna

January 29, XXVII, No. 5, pp. 93-116

118 Exophthalmic Goiter as Contra-Indication for Roentgenotherapy in Gynecology. E. v. Graff.
119 Experimental Anaphylaxis from Intravenous Injection of Chemicals. (Ueber anaphylaxieähnliche Vergiftungserscheinungen bei Meerschweinchen nach der Einspritzung gerinnungshemmender und gerinnungsbeschleunigender Substanzen in die Blutbahn.) B. Busson and P. Kirschbaum.
120 Chemotherapy in Tuberculosis. H. Pohl.
121 Pathogenesis of Nephritic Edema. L. Pollak.
122 Housing Reform. (Wohnungs-Reformbewegung.) E. Hofmokl.
123 Medical Ethics. (Aerztliche Pflichtenlehre.) E. Finger.
124 *Priority as to Discovery of Protective Ferments. E. Abderhalden and F. Hamburger.

February 12, No. 7, pp. 141-168

125 Pathogenesis of Exophthalmic Goiter. F. Chvostek.
126 Symptoms of Pseudoleukemia Following Tick Bite. W. and R. A. Haberfeld.
127 Correction of Stiff Elbow. (Zur Mobilisierung des ankylotischen Ellbogengelenkes.) D. Pupovac.
128 *Reduction of Abnormally Fat Abdomen. (Zur Reduktion des Bauchdeckenfettes.) Vesco.

124. Priority in the Protective Ferments.—Hamburger claims that he called attention years ago to the essential facts on which Abderhalden's serodiagnosis is based, and accuses Abderhalden of having suppressed all reference to his previous work in this line. Abderhalden replies by crediting the actual priority in the idea to Huppert, whose work on the conservation of specific properties was published in 1896, while Hamburger's dates from 1903.

128. Removal of Fat from Abdominal Wall.—Vesco removed wedges of fat from the anterior abdominal wall to a total of over 13 pounds in the case of an otherwise healthy man of 25 who had been previously materially annoyed and impeded in his business by his large girth. The operation was complete in thirty-five minutes and the patient made a rapid and smooth recovery and is delighted with the improvement in his appearance.

Zeitschrift für Urologie, Berlin

February, VII, No. 2, pp. 81-160 and Supplement

129 Congenital Cysts of the Raphe of the Penis. G. Fantl.
130 Spiral Spring Guard for Catheter. (Ueber Metallspiralen zum Pezzer-Katheter.) J. P. Haberern.
131 Nephrectomy with Bilateral Renal Tuberculosis. R. Bachrach.
132 The Prognosis in Nephritis. H. Hohlweg and H. Strauss.
133 Vaccine Therapy in Urology. R. Volk and others.
134 Enlargement or Atrophy of the Prostate. P. Steiner and others.

Zentralblatt für Chirurgie, Leipsic

February 28, XLI, No. 9, pp. 369-416

135 *Buried Tampon to Plug Hole in Thoracic Duct. Dobbertin.
136 *Reflex Disturbances Elicited from the Pleura. D. G. Zesas.
137 *Autodrainage of Ascites into the Bladder. (Ventilbildung an der Harnblase zur Ableitung der Ascitesflüssigkeit.) P. Rosenstein.

135. Buried Tampon to Plug Fistula into Thoracic Duct.—Dobbertin removed a large sarcoma in the left supraclavicular fossa, suturing afterward over a drain. The fifth day, when all seemed to be doing well, chyle poured out through the drain in large amounts, disclosing injury of the thoracic duct which had caused no disturbance at first on account of the ligation. No measures stopped the flow, tight tamponing, plaster strips drawn tight or folding in the skin and suturing—all were futile, and the bed was kept wet with the seeping through the dressings and the patient by the fourth day was almost exhausted. Dobbertin consequently opened the whole incision anew. The patient was too weak for any search for the duct in the depths of the granulating tissues. He consequently rolled up five tampons of ordinary cotton, each about the size of a nut, wrapped them in gauze and pushed the whole in deep toward the point whence the lymph was streaming out. He then sutured the fascia solidly over the tampon, with catgut, with a running suture above, suturing the skin with silk. Not a drop of lymph escaped thereafter. The wound healed without fever and the tenth day the bunch of tampons was removed through a small opening made in the lower end of the incision. In a few days all had completely healed and the patient rapidly recuperated.

136. Reflex Action from the Pleura.—Zesas comments on the fact that injury of the lungs is rarely discovered to explain the disturbances which some ascribe to air embolism and others to reflex phenomena set up by injury of the pleura. He thinks these pleurogenous reflexes are much more frequent than the air embolism cases, even accepting the existence of the latter. Consequently, he emphasizes the necessity for morphin to deaden the nerves in the region before attempting any intervention involving the pleura. He cites two cases in which during an operation for empyema under general anesthesia the patients died suddenly—without convulsions. Whether these fatalities can be explained by pleurogenous reflex action is a question; the patients were both much debilitated children with purulent pleurisy.

137. Drainage of Ascites into the Bladder.—Rosenstein gives an illustrated description of a method with which he formed a kind of valve opening into the bladder permitting the accumulating fluid to drain away automatically through the bladder. His patient was a woman of 62 with cirrhosis of the liver and recurring ascites since 1911. About once a week she had to be tapped and nearly 10 liters of fluid withdrawn. He first made an Eck fistula but it had only transient effect. Then omentopexy was done but no benefit followed. Finally, on the patient's insistence, after warning of the possible dangers, he made a valve opening into the bladder which permitted the entrance of fluid into the bladder but did not allow any reflux as otherwise there would have been infiltration of urine and inflammation. He exposed the entire bladder and placed a silver ring, 3 cm. in diameter (about twice as large as an ordinary wedding ring), on the top of the bladder, drawing the bladder wall up through the ring into a peak which was then cut. The bladder tissue was turned back over the ring all around and sutured to hold the ring in place, the serous surfaces alone in contact. The bladder thus opened like a jar into the abdominal cavity. Then a strip 4 cm. wide was cut out of the wall of the bladder below the sutured-in ring. The excised strip included both serosa and muscle so that nothing was left of the bladder wall all around at this point except the mucosa lining of the bladder. The edges on each side of the excised strip were then drawn up together and sutured together all around the bladder. This forced the mucosa that had bridged the gap to fold inward all around; no stitches were taken in the mucosa at any point. Ascitic fluid promptly drained into the bladder and was voided with the urine while the cystoscope confirmed that the valve thus formed prevented any reflux of fluid. The operation has been a success although not as complete as had been hoped as all the ascitic fluid does not escape this way; some accumulates below the level of the opening in the top of the bladder. The patient has had to be tapped recently on this account; although eight weeks had elapsed, the total amount of fluid was not more than what had previously been drawn once a week.

Zentralblatt für Gynäkologie, Leipsic

February 28, XXXVIII, No. 9, pp. 329-360

138 Duration of Pregnancy. (Schwangerschaftsdauer.) Peters.
139 Diagnosis of Intra-Uterine Death of Twin. (Zur Kenntnis der Zwillingsschwangerschaften.) J. Halban.
140 Advantages of Lactic-Acid Vaginal Douches during Pregnancy. (Berichtigung der Milchsäurespülungen in der Schwangerschaft.) B. Schweitzer.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 22, XXXV, No. 23, pp. 233-248

141 Ileus from Meckel's Diverticulum. G. Baroni.

Policlinico, Rome

February, XXI, Surgical Section No. 2, pp. 53-104

142 Actinomycosis of the Cecum. (Actinomicosi appendiculo-cecale con psoite e metastasi al fegato.) G. Paganelli.
143 Endothelioma of the Bladder. (Linfendotelioma della vescica.) A. Vecchi.
144 *Decapsulation of the Kidney. (Sullo scapsulamento del rene.) E. Lay.

144. Decapsulation of the Kidney.—Lay reports experiments on three dogs treated with methylene blue and three others with potassium iodid, all after decapsulation of one kidney. The ureter had been cut out from the bladder about two weeks before and sutured to the skin, and copious diuresis had been induced later by intravenous injection of a 30 per cent. solution of glucose or its equivalent. The results

observed confirm the assumption that decapsulation of the kidney does not affect its functioning nor its permeability, the kidney pursuing the even tenor of its way apparently undisturbed after decapsulation. Even when excessive functional demands were made on the decapsulated kidney, it continued functioning apparently as satisfactorily as its sound mate.

Riforma Medica, Naples

February 14, XXX, No. 7, pp. 169-196

145 Hydriodic Acid in Treatment of Certain Surgical Lesions. L. Raffaele.
146 Leishmaniasis in Man and Dog. Spagnollo.

February 21, No. 8, pp. 197-224

147 Gastric Cancer; Present Status of Diagnosis and Treatment. Marenduzzo.
148 *Diet and Kidney Functioning in Chronic Nephritis. A. Crosa. Commenced in No. 7.
149 Colon-Bacillus Abscess in the Prostate. G. D'Aloia.
150 Vaccine Treatment in Tuberculosis. A. Bruschettini.

148. **The Kidney Functioning in Chronic Nephritis.**—Crosa gives the details of extensive research in ten cases of chronic nephritis to determine the influence on kidney functioning of a meat diet and other factors. The results show that a moderate amount of meat is not injurious in such cases, whether the nephritis is of the chronic interstitial type or of the subacute or chronic parenchymatous type. The results of the findings with the various functional tests applied did not always harmonize. It is evident that even with all the progress in modern diagnostic methods, the most valuable information is still as ever to be derived from the quantity, specific gravity and sediment in the urine and its albumin content.

Rivista Ospedaliera, Rome

February 15, IV, No. 3, pp. 117-172

151 Bradycardia from Digitalis. N. Sforza.
152 Technic for Intramuscular Injection of Calomel. C. Rühl.

Brazil-Medico, Rio de Janeiro

February 8, XXVIII, No. 6, pp. 51-60

153 *Correction of Femoral Hernia through the Inguinal Canal. (Da via inguinal na cura das hernias cruraes.) C. Werneck.

153. **Radical Cure of Femoral Hernia Operating through the Inguinal Canal.**—Werneck reports the case of a man with right epigastric, inguinal and femoral hernia. He corrected the femoral hernia by way of the inguinal canal, ligating and fastening by the Barker technic, treating the hernia otherwise by Bérard's "double curtain" method. The advantages of the technic followed were so striking in this case that he wonders why every one does not treat femoral hernia by the inguinal route as the routine technic. It permits the sac to be ligated much higher up, the advantages of which are obvious. It also does away with the long funnel of peritoneum left inevitably when the herniotomy is done entirely in the femoral region. With the latter technic the wall is much less solid than it can be made when working through the inguinal canal which permits other muscles to be drawn down to reenforce the wall. Another advantage of the inguinal route is that it permits at the same time measures to ward off inguinal hernia later; it is a frequent occurrence that persons who have been operated on for femoral hernia by the ordinary incision below Poupart's ligament develop inguinal hernia later.

Russky Vrach, St. Petersburg

January 4, XIII, No. 1, pp. 1-36

154 *Action of Poisons on the Coronary Vessels of the Heart. N. Kravkoff.
155 *Test for Typhoid Bacilli in Water. G. D. Bielonovsky.
156 Arsacetin Glycosuria. B. M. Hmelnitzky.

January 11, No. 2, pp. 37-72

157 Technic for Wassermann Test. A. A. Melkikh.

January 18, No. 3, pp. 73-108

158 *Prognosis in General Anesthesia. V. A. Stange.
159 *The Importance of Vitiated Air in the Etiology of Anemia. S. F. Krotkoff.

154. **Action of Poisons on the Coronary Vessels of the Heart.**—Kravkoff studied this question on the hearts of rabbits, using the Ringer-Locke fluid. He found that epinephrin (1:5,000,000, or 1:500,000) does not cause any marked contraction, but rather a dilatation of the cardiac vessels. Caffein and theobromin induce considerable dilatation, while contraction follows application of nicotin, pilocarpin, barium and histamin. The vasoconstricting action was less manifest than in the peripheral vessels, but the vasodilating action proved to be much more pronounced on the cardiac vessels than on the peripheral. This shows that the nervous system of the coronary vessels contains predominantly vasodilators, the vasoconstrictors being derived exclusively from the vagus nerve.

155. **Test for Typhoid Bacilli in Water.**—Bielonovsky used an agglutinating serum for detection of typhoid bacilli in river water. Two liters (4.2 pints) of water were mixed with enough agglutinating typhoid serum (titrated 1:1,500) to make a strong titrated serum of 1:100. For this purpose he added 2 gm. of dry serum, previously dissolved in physiologic salt solution. The mixture was placed in a thermostat at 37 C. Twenty-four hours later the supernatant fluid was decanted and the sediment spread on the culture medium of Drigalsky-Conradi. With this method he succeeded in detecting the typhoid bacilli in very great quantities in different sources of the water-supply of the town Reval in Russia. Bielonovsky considers this method, which is a modification of the Vindelbandt-Shepilefsky technic, much superior to other methods. With others, the presence of typhoid bacilli in the water could be proven only twenty times, while in more than 5,000 tests these methods failed.

158. **Prognosis in General Anesthesia.**—Stange emphasizes anew that the condition of the heart is the best indicator of the patient's ability to stand chloroform or ether general anesthesia. The death-rate for the former is 1:1,000 or 2,000; for the latter 1:4,000 or 5,000. To determine the condition of the cardiac muscles, he recommends the so-called respiratory test, that is, the ability to abstain from breathing for some time. This is for a healthy person 30 or 40 seconds, while a person with a weak heart muscle can hold his breath only for 10 or at most 20 seconds. The test is very simple. The patient, sitting, makes a deep inspiration and closes his mouth, the nostrils being slightly compressed to avoid involuntary expiration, and while the patient is requested to refrain from breathing as long as possible, the seconds are counted. These experiments showed that in pulmonary tuberculosis his patients could remain 25 seconds without breathing; in chronic bronchitis, 28 seconds; with emphysema of the lungs 24 seconds; with mitral insufficiency, 22 seconds, and with mitral stenosis, 20 seconds; stenosis of pulmonary artery, 28 seconds; aortic insufficiency, 15 seconds; chronic myocarditis, 17, and with aortic aneurysm, 10 seconds. Stange recommends this test in every case before starting an operation, and if the patient cannot abstain from breathing for more than 20 seconds, local anesthesia should be used, or, if the operation is not urgent, the general condition of the patient and his heart ought to be improved first. He also states that some American insurance companies do not consider a candidate a good risk if he has a respiratory test below 40.

159. **Importance of Vitiated Air in the Etiology of Anemia.**—Krotkoff found from his experiments on rabbits that they can bear with impunity considerable polluted air, with 8 or 10 per cent. of carbon dioxid, the blood remaining normal, but with loss of weight, provided the animals are healthy. The rabbits were then rendered anemic by injection of phenylhydrazin which reduced the hemoglobin to 15 or 30 per cent., the number of reds to 1,050,000. Three rabbits were kept in the open air and three in boxes closed up for two months. In both series the hemoglobin and red count became normal; the white count remained unchanged. Krotkoff thinks that vitiated air can cause anemia in human beings only when there is some predisposition on the part of the blood-making organs to disease. Otherwise the bad air of prisons, workshops, etc., causes only pseudo-anemia, that is, pallor of the integument but with no changes in the blood.

Ugeskrift for Læger, Copenhagen

February 19, LXXVI, No. 8, pp. 315-376

160 Unilateral Paralysis of Sympathetic and Several Cranial Nerves. V. Christiansen.
161 Action of Ionized Air. (Paavirkes det menneskelige Legeme af ioniseret Luft og ad hvilke Veje? T. Brinch.